

PHILOSOPHY

HISTORICAL AND CRITICAL

BY

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London:

CHAPMAN AND HALL, 193, PICCADILL,
1879.

**CHARLES DICKENS AND RVANS,
CRYSTAL PALACE PRESS.**

INTRODUCTION.

BY THE TRANSLATOR.

The Author's extreme Views—Publicity vindicated—Various Theories of Evolution—Weak Points of the Atheistic Conception of Man and the Universe—The "Quadrilateral" of the Spiritualists—Origin of Life—Biogenesis and Abiogenesis—The Vital Functions: Nutrition, Reproduction, Sensation—Mind and Consciousness—Volition—Free-will—Automatism—The Idealistic Conception established—The Religions.

THE Author has not supplied a preface to this work. The method and plan of his treatment is so extremely simple, and his general exposition of the subject so clear, and within the available limits so exhaustive, that he may well have left the book to speak for itself. He is, of course, a materialist of the most advanced modern school, and as such expresses his opinions in the most outspoken and uncompromising manner. The subject itself—a summary of the various philosophic conceptions of man and the universe—being moreover of a most comprehensive character, there are no abstract and but few concrete matters that he has not had occasion to deal with, more or less fully, from the atheistic point of view. But this very circumstance would seem to call for a few words of warning to the unwary; the more so that the work in its English dress, and as one of a popular series, must necessarily fall into the hands of many readers who are apt to be carried away by a certain speciousness of reasoning, and who are not always possessed of a ready answer to a line of argument undoubtedly urged with great vigour and cogency.

INTRODUCTION.

It may even be asked, why then publish such things at all? But here the reply is obvious enough. It is not by saying, writing, or publishing them that these views will be established if false, while if true, they must in any case ultimately assert themselves. The old adage *Magna est veritas et prevalebit* is here peculiarly applicable. Hence the avowed absurdity and uselessness of an "Index Expurgatorius," now everywhere happily abolished except, for obvious reasons, in the case of books injurious to the public morals. But it would be as reasonable to object to many current educational works on chemistry, biology, zoology, anthropology, whose general tendency may be summed up by Moleschott's formula "*Ohne Phosphor kein Gedanke*" (no phosphorus no thought), as to complain of a more comprehensive treatise dealing with the abstract conception of all these and many other branches of knowledge, merely because it calls itself *Philosophy*. The most extreme evolutionist theory cannot be any more dangerous or subversive of sound religious principles, when applied as a test to the various metaphysical systems of past and present times, than when made the basis of special didactic treatises, freely placed in the hands of young students, and which notoriously find favour with the promoters of "the higher education of women."

Meantime evolution, or, as expressed by the distinguished French naturalist Prof. Charles Martins, of Montpellier, "the theory of evolution binding together all problems of natural history, as the Newtonian laws bind together the motion of the heavenly bodies," is the great intellectual fact of the day, and whether favourable or not to our personal views, cannot possibly be excluded from any intelligible treatment of philosophy. Indeed, evolution, in some form or other, may now be taken as an established and almost universally-accepted truth, being practically identical with that "progress from the homogeneous to the heterogeneous," from the general to the special, from the simple to the complex, from unity to differentiation of functions and physiological division of labour, justly regarded by Herbert Spencer as the great law of nature.

At the same time it cannot be too often repeated that there are

various theories of evolution, as, for instance, that based by Lamarck on the principle of appetency, or use and effort; Wallace and Darwin's natural selection and struggle for existence, resulting in the "survival of the fittest;" Mivart's proordained succession of organic forms under an innate tendency, or "internal force;" which is substantially the same as the Duke of Argyll and Asa Gray's law, orderly creation, immanent action and direction of divine power; lastly, the crude materialistic conception, utterly eliminating the supernatural and preternatural elements, effacing soul and the Deity, substituting the monistic or mechanical for the dualistic conception of the universe; in short, the theory advocated in the present work. It is obvious, therefore, that except for those holding this last and extreme view, there is no necessary antagonism at all between creation and evolution as such. Hence no fault can be found with the writer as a mere evolutionist; but there may be some ground of complaint at his dogmatic assumption that this purely atheistic conception in its very crudest form has already ceased to be a mere theory, a matter of speculation, an opinion possibly true, possibly false, and must now be accepted, to the exclusion of all other theories, as a *demonstrated truth*, at the risk of renouncing all pretensions to be regarded as a sound or rational thing.—"a philosopher." However, instead of indulging in idle complaints, it will perhaps be more to the purpose to endeavour here to show that our author's assumption is unwarrantable, and that the whole question is not only still *sub judice*, but possibly farther off than ever from being decided in a sense favourable to the materialistic school.

At p. 540 he remarks in a general way: "We know by what imperceptible gradations the molecular combinations—life, sensation, the image, the idea, reason itself—pass from one state to another." But this is precisely what we do not know, and to assume such a knowledge is simply to beg the whole question. The transition from mere molecular combinations, whether mechanical or chemical, to life, from life to reproduction, sensation, consciousness, is still shrouded in the profoundest mystery, and may be regarded as a sort of "quadrilateral," within which the

spiritualists take their stand, and not one of whose four strongholds they believe has yet been seriously assailed, much less captured.

And, first, even granting the eternal existence of matter, as a kind of common starting-point for all but the mere theologian tied to the Mosaic cosmogony, what is M. Lefèvre able to tell us about the evolution of life out of what may be called the *raw material*? Not much more than the succinct statement at p. 421: "Living organisms result from chemical combinations," supplemented by the daring assertion, at p. 476, that "the organic contains nothing that is not contained in the inorganic." But chemical combinations continued *ad infinitum*, and however varied, remain to the end nothing but combinations, different dispositions, first of atoms, and then of molecules, resulting at most in crystals, but not necessarily in organic bodies. These organic bodies do contain something "not contained in the inorganic;" they contain the "vital force," which, as we shall presently see, is something over and above, something superinduced, something of an essentially distinct order and category from mere atomic or molecular combinations. And when he endeavours to meet the objection at p. 474, that "life cannot flow from what has no life," that "matter cannot produce thought, cannot give what it has not," we are again asked to believe that there is nothing "higher and lower" in nature, nothing more or less in the living than in the inorganic body, because the organism is merely a particular combination of bodies otherwise devoid of life, because "matter is the condition of life and thought," because "life and thought imply matter." No doubt this is so; but a condition, even if indispensable, is not necessarily an equivalent, any more than implication is identity. The growth of the European cereals *implies* certain favourable conditions of soil and climate, but these conditions existed for ages in many parts of the New World without producing a single ear of wheat till it was planted there by the hand of man. And is there any one of us who seriously believes that such a vegetation would have ever sprung up in those regions, unless either so planted or otherwise propagated from a similar vegetation elsewhere

flourishing? In the same way the spiritualist may fairly argue that the conditions favourable to the evolution of life might have existed for countless eons, without ever resulting in "a spark of life," had not the germ been planted on this globe at some indefinitely remote period by the hand of the Creator. Anyhow, there is no greater fallacy in logic than to identify phenomena with their indispensable conditions and efficient causes; for it is evident that the conditions and causes might go on existing indefinitely without necessarily producing the phenomena. Hence Darwin rightly refuses to believe in any "law of necessary development."

Professor Haeckel, the foremost champion in Germany of the extreme materialistic view, is perhaps more consistent when he frankly confesses that he cannot get on without spontaneous generation as the starting-point of life. In a recent address to the French Association, he says: "The primitive monads were born by spontaneous generation in the sea, as saline crystals are born of their mother waters. *There is in fact no other alternative to explain the origin of life.* He who does not believe in spontaneous generation . . . admits miracle." Here, then, the issue is narrowed by the leading materialists themselves to the question of *abiogenesis* as against *biogenesis*. But the battle between these two theories, between Bastian and Pasteur, though still of course undecided, has lately gone very hard against the former, that is, against the evolution of life out of dead matter independently of a creative force. Indeed, our author himself almost concedes this point, for at p. 472 he seems disposed to believe that organic chemistry will never succeed in producing a living cell, that is the lowest conceivable form of life. And so keenly does Haeckel feel the tremendous difficulty under which the materialist labours in the absence of a beginning of life, a fair starting-point, that he simply takes it for granted as the only alternative to the "miracle." Give him this fulcrum of a beginning, and he will build up the fabric of the universe, as easily as Archimedes would have moved it when built, if only he could get the *πῶς οὐδὲν*. Admitting in his "Natural History of Creation" the difficulties as to the original heat of the gaseous nebular masses and their

rotatory motion, he says: "All attempts to explain these facts lead us inevitably to the untenable theory of an absolute beginning." Now the facts are certain; consequently, whatever theory they "inevitably lead us to," must be equally certain. But they lead us, he says, inevitably to the theory of an *absolute* beginning; therefore it is illogical of him to call this *absolute* beginning *untenable*. It is the direct and *inevitable* conclusion of his own premisses, and must therefore be accepted by him as a perfectly *tenable* and unavoidable sequence. Haeckel here establishes as inevitable the theory of an *absolute* beginning, that is of creation, and is, *volens volens*, entirely of accord with the theistic evolutionists.

Observe further, that if, as we are meantime entitled to hold, biogenesis is really the law of life, the whole history of evolution assumes a different aspect, one more at variance than ever with the materialistic conception. For it is evident that in this case the organism is the outcome of life and not life of the organism. In other words, the living principle—"the vital force," as it is called, somewhat passive in plants, more active in animals—will have throughout all time been aiding and determining, though of course unconsciously, rather than been aided and determined by the surroundings. Hence evolution, especially such developments as have resulted in transformation of species, will have been effected from within rather than, or at least more than, from without; and independently of the vital force such development could never have taken place, even under the most favourable conditions. In other words, we should have had no evolution but for the presence of a something, an agency distinct from, yet guiding and controlling matter throughout all time. Matter alone, with the requisite amount of light, heat, moisture, Electricity, &c., thrown in *parcellatus le marché*, would have been insufficient to make a single step in advance, and the history of evolution would be the history of a living principle, of a something immaterial at work from within, much more than the history of the sixty-six or sixty-eight primary elements of matter combining chemically from without.

This view will be confirmed when we remember that even in the case of abiogenesis something more is needed than the mere evolution of a living organism out of dead matter. For this organism, when so evolved, either by the chemistry of nature or in Dr. Bastian's laboratory, would have to be endowed with certain organic functions, at least those of nutrition and reproduction, and, if it is to be an animal rather than a plant, those also of correlation to the outward world—sensation, locomotive power, and the like. But Dr. Bastian himself will admit that these functions are something more than mere life, which is often absolutely *quiescent* in the germ or seed for protracted periods; and we can conceive of a being, a piece of sarcode or protoplasm, so produced either by him or by nature, destitute of these vital powers, yet continuing to exist for a brief space of time. Consequently, spontaneous generation itself is insufficient to account for the existence of *perfect* plants and animals, performing all the functions of life, nourishing and reproducing themselves, and, in the course of ages, developing by evolution into the complex system now constituting the animal and vegetable kingdoms. Moreover, many naturalists are of opinion that organisation, or differentiation of parts, is not an inherent and essential condition of the vital functions, consequently that vital force is really the cause, rather than the consequence, of organisation; that is, of potential evolution, of everything beyond mere bioplasm, or the "proteins" of Mulder, of everything, in fact, beyond the mere physical or formal basis of all life. Hence our author's statements (p. 512) that "man is an organism determining an intelligence," and that "intelligence is the result of organic phenomena," simply reverse the terms, and it would be nearer perhaps to the truth to say that organic phenomena are the result of intelligence, or at least of the vital force. The distinguished naturalist, Dr. H. A. Nicholson, declares ("Zoology," p. 7), that "no physicist has hitherto succeeded in explaining any fundamental vital phenomena upon purely physical and chemical principles. The simplest vital phenomenon has in it something over and above the merely chemical and physical forces which we can demonstrate in the laboratory." And finally: "In the present state of our knowledge we must conclude that,

even in the process of digestion as exhibited in the amoeba, there is something that is not merely physical or chemical." Until it is ascertained what this something is, whether it be psychical or merely physical, the materialists will not be warranted in asserting with the writer (p. 448) that "the things whose aggregate is expressed by the word *universe* are formed of certain given substances, *beyond which nothing exists*," while their opponents will be justified in maintaining that the first, ~~second~~, and third strongholds of their "Quadrilateral"—life, reproduction, sensation—are so far unshaken.

There remains the fourth—mind, consciousness, thought; with all the accompanying intellectual phenomena—memory, reflection, volition, free-will, moral sense, in a word, man! And here it may be well to remind those who speak flippantly of man's descent or ascent from some branch of the "anthropoid" apes, that this is very far from being a finally-settled point. Speaking of the gorilla, chimpanzee, soko, and other African quadrumani, Dr. George Schweinfurth, one of the most experienced and observant living naturalists, remarks: "In modern times there are no animals in creation that have attracted more attention from the scientific student than these great quadrumani, bearing such a striking resemblance to the human form as to have justified the epithet of anthropomorphic conferred on them But all investigation at present only leads human intelligence to a confession of its insufficiency; and nowhere is caution more to be advocated, nowhere is premature judgment more to be deprecated than in the attempt to bridge over the mysterious chasm which separates man and beast" ("Heart of Africa," i. 520).

Here the writer is of course speaking, as a zoologist, rather of the physical than the mental evolution of man from a lower animal type; and if the "chasm" between their anatomical structure is in his opinion so "mysterious," how much more so that which separates them intellectually. It is so vast that Wallace, one of the founders of evolution, expresses his belief that "*a superior intelligence has guided the development of man in a definite direction, and for a special purpose, just as man guides the development of*

many animal and vegetable forms" ("Essays on Natural Selection"). Such passages as these from the leading authorities of the day show how very far the materialists are from having it all their own way yet awhile. Professor Huxley also, assuredly second to none amongst living naturalists, speaks of the difference between the mind of the highest anthropoid apes and that of man as "an enormous gap," a distance practically infinite; while even Tyndall, in an address to the physical section of the British Association, which has become famous, confesses that "the passage from the physics of the brain to the corresponding facts of consciousness is UNTHINKABLE." The rest of the passage, which is extremely instructive and most satisfactory to the theistic evolutionist, will be found quoted at p. 491.

Yet M. Lefèvre fancies he disposes of the whole difficulty by confidently asserting (p. 507) that certain admitted anatomical and physiological laws are not only the indispensable condition of human intelligence, but that "they prove the *identity* of the cerebral activity with thought." The laws in question are no doubt an indispensable condition, not, indeed, of "human intelligence," but of its *outward manifestation*, which is a very different matter; but beyond this they prove, and can prove, absolutely nothing as to the essential nature of thought; least of all can they show that it is "identical" with the throbbings of the brain, for this is what in plain Saxon is meant by "cerebral activity." These throbbings may for the moment be compared with the action of the heart, as indicated by the beating of the pulse. Then, the brain being the seat of reason, and the heart popularly regarded as that of the emotions—to say that a throbbing of the brain, whether it take place in the white nerve-substance or in the gray cortical matter, is an act of reason, or identical with it, is like saying that the quickened beat of the pulse, either at the wrist or elsewhere, is an act of love or hatred, or identical with it. Doubtless it may be replied that the pulsation is the index of the sentiment or passion transmitted from within; but, if so, may it not be fairly retorted that the throbbing also is in the same way, not the thought or reason itself, but only its index? And so we remain as far off as

ever from bridging over the "chasm" between "the physics of the brain" and the corresponding phenomena of consciousness.

All this is but another illustration of how little is gained, or rather, how much is lost, by the idle attempt to explain away spirit and materialise mind, that mind of which the Stagyrte said: *Ἀνελευσὶς δὲ τὸν νοῦν μόνον ὑπάδειν ἐκείσθηναι καὶ θεῖον εἶναι μόνον*; in other words, that the mind is necessarily from without, and is the essentially divine part of us.

The weakness of the atheistic standpoint will become still more evident when we pass on to consider the questions of volition and free-will as against mere *automatism*. The writer does not formally adopt this last term; but it is evident from many passages and processes of reasoning that, in common with all other materialists, he practically regards the mind as a mere automaton, a system of "rouages," as he expresses it, or, as we should say, an intricate piece of clockwork, wound up, and, "barring" accidents, warranted to go for some fourscore years. Indeed, in a curious passage, at p. 522, it is spoken of as "an *automatir* dictionary, whose pages turn of themselves, excited by the passive state of the periphery and that cerebral activity sustained, till worn out, or till death, by the countless wheels of the organism." At p. 544 there even occurs the expression "the thinking mechanism," implying that thought is a purely mechanical action, or, let us say, a machine in motion, where it should be observed that the machine is the organism, and its motion the thought. There is of course in nature, from whatever standpoint it be viewed, abundance of mystery, and all theories of the universe and of man must allow for the inexplicable. But many will think that, of all the inexplicables, the most astounding is the identification of conscious thought, reflection, reason, with certain mechanical vibrations of certain purely material substances, by whatever learned name they be called.

In the same place an attempt is made to trace the gradual evolution of will from the first faint symptoms of sensation in the organism, and in doing so the writer lets fall several expressions which are highly instructive. Thus he speaks of possible alternatives of action, with their "known dangers" and "probable

chances," which chances are "weighed," balanced; where it may be asked, to whom are the dangers known? By what or by whom are the chances balanced? Who sits in judgment? Who acts as umpire? Who or what decides? How, easily all these questions are answered from the idealist's point of view! How impossible to solve them satisfactorily when the mind and its various attributes are identified with the mechanical vibrations of the gray cortical substance of the cerebrum!

Farther on, volition is admitted to be "a choice," or selection; and it is added, that the resulting act is *deliberated*, though without ceasing to be "determined," that is necessitated. But, if there is choice, there is the power of selection, that is there is *option*, which necessarily involves freedom of action, if language has any meaning at all, and unless the choice itself be a mere delusion and a mockery. The fact that it is "determined" by the balance of motives, which is mainly true, does not imply that it is necessitated, but only that it is an intelligent rather than a blind or arbitrary choice; and the element of intelligence thus introduced rather strengthens than weakens the position of those who persist in believing themselves free and responsible agents, or rather responsible because free. The statement, which we often hear made, that "the strongest motive prevails," is misleading, or means nothing more than the truism, that the motive which in each case prevails is no doubt the strongest when we act reasonably, and in no way clashes with the inherent privilege of option. We are not bound, for instance, to act reasonably, and all are doubtless familiar enough with instances to the contrary, even amongst the wisest of their friends. *Scio meliora proboque, deteriora sequor* is as true now as it was in the days of Horace; and here we see the stronger (*meliora*), although recognised (*scio*), and even approved of (*probo*), deliberately set aside for the weaker (*deteriora*). Nor can it be denied that we often do violence to our own feelings and inclinations in our decisions, especially when carried out in action; as in the often-quoted instance of the dipsomaniac, who by the sheer strength of his will succeeds, with much painful and protracted labour, in overcoming the acquired habit of indulgence in excessive

drink. The materialist cannot withhold his admiration and respect for such men ; but admiration and respect are misplaced sentiments in regard of mere "rouages" and automata; *ergo*, &c.

Again, we are told (p. 545) that to will with a full knowledge of all the bearings ("*en connaissance de cause*") is not to will freely ; that the most conscious agent, the best informed as to the *proes* and *cons*, is not free to will otherwise than he has willed. We have seen that Horace thought otherwise, and it may now be added that the writer is here at issue with the most profound thinkers of all ages. They have refused to believe that they are not free, because they act intelligently rather than capriciously ; they have ever declined to regard themselves as mere automata, as "*rouages mécaniques*," simply because they judge and decide for themselves, because they allow the strongest motive to prevail, because they will "*en connaissance de cause* ;" and they are perfectly willing to let the whole question, as between the automatists and believers in *liberum arbitrium*, be decided on this issue.

To say, further, that our liberty is co extensive with our *power* of action, that it vanishes when the power ceases (p. 547), either means that liberty is not *omnipotence*, which nobody says it is, or else confounds the potential quality with its accidental suspension. "When the arm is paralysed" (*ibid.*) no doubt it cannot move ; but that is an accident, a casual suspension of a power which in the normal state exists. So also a serious lesion of the third frontal convolution of the left hemisphere of the cerebrum invariably produces aphasia. Are we therefore in this case to say that the patient has ceased to be a human being ? Assuredly not, because it is not the faculty of articulate speech that he has lost, but only the power of exercising that particular faculty. Consequently, accepting the comparison of the paralysed arm, we may say that freedom of action may also be suspended, as, for instance, in the case of a morbid state of the system ; but that in the normal state the *mens sana in corpore sano* is truly a free agent.

The fact is, the transition from mere sensation to thought, or consciousness, with all its attributes, is as "unthinkable" as is the transition from no-life to life ; and all that the writer or any other

materialist can really tell us about it, is contained in the somewhat naive passage at p. 536: "On their way through the memory, association of ideas, ratiocination and imagination, THE SENSITIVE WANTS BECOME INTELLIGENTIAL." How become? How is this astounding transformation effected? When and where do the animal wants cease to be merely sensitive, and become "conscious?" At what particular stage do they suddenly become *deliberate*, for instance, and stop to survey the situation? When do those physical wants begin to recognise, study, probe, examine themselves, reflect and sit in judgment upon themselves? Where do they proceed to weigh, estimate motives, and decide accordingly, turning back or passing on to the right or to the left, according to the "stronger motive," while in the decision acknowledging their own personal responsibility, and thus ultimately arriving at a clear perception of *the moral sense*? And here, seeing that we know nothing of matter directly, but only through the senses, may it not also be asked, to what recipient are all these mental phenomena transmitted? To something either different from or identical with matter? If the former, then the mind, the *ego*, the recipient, is not material; if the latter, then matter transmits these sensations to itself, and we are landed in a vicious circle—matter perceiving, judging, approving, condemning itself, as the case may be, all through its own sensations!

Then again, is not the moral sense, the feeling of responsibility, a responsibility not merely imposed upon us by society and its laws, but one unhesitatingly believed in and accepted by ourselves; is not all this of itself alone a convincing proof, an *argumentum ad hominem* for each of us, that we are really free agents, responsible beings? Hence it is not surprising that most well-balanced minds persist in believing—Huxley's steam-whistle notwithstanding—that they possess an inherent self-determining power, a self-adjusting and self-regulating force, which no theory of evolution can thoroughly account for, which no sophistry can explain away, or reduce to the play of mere "ideaginous molecules." In a word, the doctrine of automatism, to which materialism confessedly leads, so far from being borne out by observation, can be reconciled with

the ascertained results of experience, only by taking for granted many things which are utterly destitute of all proof, and which, if proved, would but enhance the difficulties already presented by mental phenomena (Dr. Carpenter).

Thus we see that the dualists, the believers in mind and matter, have some grounds for holding that none of their strongholds have yet fallen, that their position remains impregnable all along the line; consequently that their conception of man and the universe is at least quite as philosophic as is that of their opponents. Hence the belief in a deity, in creation, in spirit as distinct from material substance, even in immortality, may continue to be entertained without rendering ourselves liable to the charge of superstition, prejudice, mental obliquity of vision, blind or inveterate anthropomorphism, and the other hard epithets flung about, often somewhat wildly, by the eloquent and exuberant writer. As this belief is, further, quite as satisfactory, moral and conservative of the social order, besides being a trifle more consoling, there can be no great harm in still upholding it against the atheistic theory of evolution. Evolution itself, as already seen, in no way necessarily excludes the theory of creation. And after all, as Professor Huxley well remarked in a recent lecture on "The Human Hand," it makes not the smallest difference to the deity which view of creation be adopted. "For it is undoubtedly a far greater triumph of skill and power to take a small oleaginous particle of matter, in which the most searching chemical analysis can discover so little, and build up the whole immensely complicated framework of a man, than it might be to take a bit of clay and mould it into human shape." In other words, the very facts of evolution, rightly considered, tend to strengthen the theistic conception, which regards it not as a cause or law in itself, but rather as a summary term or expression of the general order of progress of the natural forces, guided by a divine Controller. In short, evolution implies an evolver; order, an ordainer; method, teleology; design, an intelligence or will, necessarily infinite—an *Ene Supremum*—behind it all.

With these remarks it is hoped the present treatise—admirable in most other respects, and especially in its historical and critical

survey of the philosophies—may be perused by the ordinary reader without much danger to the “faith that is in him.” The religions, doubtless, receive some very rough handling, but they can probably bear it; and in any case, as the writer says of metaphysics, they must look to it. All of them, however, have made themselves at one time or another responsible for so many insanities in dogma and morals—belief in an impossible cosmogony; in a puerile astronomy; in the objectivity of certain Assyrian myths; in witchcraft; the efficacy and justice of the rack and the stake; intolerance; suppression of dogmatic error by fire, sword, and massacre of man, woman, and child; predestination as understood by Augustine and Calvin; a personal devil, presiding over an everlasting realm of material fire and brimstone; divine right of kings; and the like—that they could scarcely expect to escape without a few hard knocks in a work of this sort. Most of them are now, perhaps, secretly sorry for these doctrines and practices, and would wish to see them eliminated from their catechisms and “confessions,” were professedly revealed religions, like the universe, a question of evolution. Still, though this cannot now be done, the strictures here impartially meted out may possibly do much more good than harm, if taken in the proper spirit. Have we not heard that Buckle’s “History of Civilisation in England,” fragmentary and ill-digested though it be, has yet served somewhat to sweeten the acerbity of Calvinism even beyond the Tweed?

Besides, many enlightened churchmen of various persuasions have already frankly accepted the situation; amongst others the late Abbé Bourgeois, who was one of the most zealous champions of tertiary man in Europe. Of him it is recorded that, when once asked in public how he reconciled such a prodigious antiquity of man with the Mosaic account, he replied: “*Je suis naturaliste, je ne fais pas de théologie.*” Such a reply, though well enough as a retort, could scarcely, however, be considered as otherwise quite satisfactory, seeing that we have not two personalities, and cannot to suit the occasion make ourselves at one time theologians, accepting a given revelation, at another naturalists, advocating views opposed to that revelation. But the illustrious savant probably meant to say

little more than that the man of science cannot be denied the right to prosecute his inquiries independently of all collateral considerations, and regardless of any possible consequences to preconceived theories of the universe. Those who still dogmatise on certain narrow views and foregone conclusions, views and conclusions utterly at variance with ascertained facts, will do well to ponder over the words of the Abbé, and prepare for the inevitable.

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PART I.

SYSTEMS OF PHILOSOPHY.

PHILOSOPHY.

CHAPTER I

PRIMITIVE TIMES.

§ 1.—*Period of the Cosmogonies—Origin of Anthropomorphism.*

No written records enable us to study the dawn of human culture, for, while primitive man is still present amongst us, we are yet separated by an immense gulf from the first feeble essays of conscious thought. Our ancestors have bequeathed to us an intellectual inheritance, which, though covered by successive layers, and apparently crushed beneath the weight of accumulating ages, never ceases to crop out at intervals through the deposits beneath which it lies buried. The seed planted in those remote times still continues to produce a noxious vegetation, which science, with its defective implements, fails entirely to eradicate. This parasitic growth entwines itself round our very thoughts and habits, thus presenting formidable obstacles to the progress of truth. To such an extent is education affected by it that the prejudiced or interested reposing beneath its shade, or living on its fruits, believe or assert its doctrines to be essential and eternal principles of virtue and wisdom, venerable props of our modern social systems.

Still the obsolete or fossil character of this troublesome vegetation may be readily detected. Every practice at variance with the general condition of morals, every current of thought condemned by experience, is a part of the ancient inheritance, a witness of the

olden times. They reflect certain centres of mental activity, in which they harmonised with the actual state of knowledge at the time, but are now out of date. Thus, in the absence of more positive data, a careful study of our normal civilisation, separating it from the anomalies by which it is still disfigured, might almost supply the elements for a history of human thought itself.

On this very foundation Auguste Comte, or rather Dr. Burdin, has based his well-known law of the three phases of human development—the theological, metaphysical, and positive, which, when formulated in this general way, may appear convenient for a tentative classification of intellectual progress. But he has not paid sufficient attention to the fact that the three terms are not fairly balanced, that is, separated by equal intervals one from the other. Compared with the positivist conception of the universe, the theological and metaphysical must be regarded as forming but one and the same phase, being merely two almost parallel and concomitant aspects of anthropomorphism. At the same time the positive state is as ancient as the other two, having begun with the first industries and rudimentary experiences. We soon perceive that where theology dominates metaphysics are necessarily in the ascendant, since theology itself is, after all, a metaphysical conception, and *vice versa*. But, as stated, the positive condition has never been absent, although it did not acquire the uppermost until the sciences were fairly established.

Comte's view, however, was as advanced as was compatible with the state of knowledge fifty years ago. Fresh aids and valuable discoveries now furnish the means wherewith to check and rectify it. Thanks to anthropology, linguistic studies, and prehistoric archeology, the history of human thought has passed from the sphere of abstract reasoning to that of practical observation. Lastly, the study of races arrested in the savage or barbarous state, enables us to compare their industries and their ideas to those coincident with the first education of our Aryan forefathers, and thus submits to the test of actual experience the long-forgotten stages of our development.

Here we would insist on the great service rendered to the

history of thought by the science of language. By its means we return, if not to the dawn of thought, at least to the first efforts of reason to co-ordinate its formulas, and group together the rudimentary data acquired by untrained experience.

The oldest state of Aryan speech, such as it appears when restored by the comparative study of its various branches, shows us the already numerous shades of impressions and thoughts grouped under a few hundred keys or roots, as they are called—categories, in fact, created by a sort of concrete abstraction, in order to sum up without substantival, adjectival, verbal, or other relationships of any sort, such diverse conceptions as those of brightness, darkness, motion, food, drink, procreation, memory, life and death, pain, pleasure, violence, fear, and the like. In order to denote modal, temporal, syntactical, and other grammatical relations, to these notional monosyllabic roots are gradually added certain prefixes, infixes, and suffixes, which are themselves originally nothing but analogous roots disguised by phonetic decay, and combined in diverse ways with the leading term. As these roots, however abstract in themselves, merely embody concrete impressions, it follows that language is a tissue of metaphors in which rough material representations are adapted to the expression of the most subtle play of thought. They are already far removed from the first utterances elicited by the objects themselves, no longer expressing anything but qualities. But the study of less-developed languages fairly implies long periods in which the articulate sound, variously modified, came to denote outward objects, according to the different sensations they happened to arouse in the observer. The abstract roots give evidence of a reasoning faculty and of a simplifying process altogether beyond the reach of the savage, who names in succession each tree and animal he meets, without ever arriving at the general idea of tree or animal. These abstract roots are, in fact, the remains of countless onomatopoetic or more concrete vocal signs.

Diffusiveness or incoherence of thought was the first mental state. Man was at first a mere giver of names, by one or more spontaneous utterances naming in their turn all the objects and aspects of nature, and all inward sensations directly or confusedly.

detected. It was only after a long and painful effort that he succeeded in arranging his observations and recollections, in co-ordinating his ideas by comparison, analysis, and synthesis.

But at this remote period what room was there for philosophy, that is, for a rational conception of the universe in its relations to man himself?

The development of the various branches of the human family must have proceeded simultaneously. Climate, the configuration of the land, contact, isolation, and other circumstances have tended to produce racial distinctions, to determine, retard, or hasten the course of their individual evolution. In vain seclusion is diminished by growing intercourse, in vain differences are effaced under the levelling influence of a uniform civilisation. It remains no less obvious that infant, adult, and decrepit peoples are still found existing in one and the same age. Chronology groups together nations intellectually separated by thousands of years, while, on the other hand, separating by immense intervals social and moral states otherwise perfectly similar. And what is true of sections of mankind taken as a whole, is no less so of special departments of thought, science, and art. These views will be fully illustrated in the philosophy of history. Here it was necessary to indicate them, warning us, as they do, that we are not to look for primitive conceptions of man in monuments implying an advanced state of culture, to whatever age they may belong.

But the six thousand years from which the Egyptian or Chinese civilisation may date, are, after all, a very small matter. It will be necessary to search far deeper in the archives of the past—those geological records in which are preserved the undying memorials of human industry among the men of the Stone Age, at whatever period they may have taken the first step on the way of progress, and among their true contemporaries, the living savages of Australia, Polynesia, and South Africa. Here we may hope to discover the germ of the metaphysical systems, those results of ignorant inquiry that have been carefully preserved from age to age. Here have had their birth those cosmological ideas whose history we shall have to trace.

The facts derived from these sources may be checked by comparison with the incipient thought of the child, without, however, forgetting that amongst civilised peoples the child is heir to an accumulated inheritance, and that education, however slight, suffices to modify the conclusions he draws from his impressions.

Lastly, the intelligence and the habits of animals in the wild state, their feelings and actions towards animate and inanimate nature, will throw light on the attitude of man himself in the presence of the universe before the development of speech and reason.

Whether man be descended from some remote species of anthropoid ape, or whether he appeared in the animal kingdom under a form akin to his present shape, his lowly origin, and the infinite slowness of his upward development, are sufficiently attested by the simple fact that there was a time when he was not, and a time, still far removed from the present, when he existed.

If the tracings detected by the Abbé Bourgeois on some bones of the pliocene tertiary epoch are the oldest vestiges of men, they carry us back to an age when he differed in nothing from apes, able to strike at close quarters with a stone or a stick. With a keen relish for marrow, he endeavoured to crack bones in order to extract it. He fought, ate, slept concealed in a cave, or nestling in some leafy tree. His instincts went no further than the point of satisfying his hunger and preserving his life. Want alone was his guide. Inferior in strength to most animals whence he might derive nutriment, he learnt (who will say in how many ages?) triumphantly to employ against them his dextrous hands, and the heavy or sharp objects placed within his reach by his prehensile faculty. But what idea did he at that time form of the world and of himself?

No doubt he already distinguished the creatures coming in more immediate contact with his senses, classifying them in various categories, according as they were good to eat, formidable, easy to capture or kill, and so on. In the presence of objects which eluded the immediate attack of his claws or his teeth, his

first impression was one of surprise. He indicated them by the various tones of his cries—yelping at the smooth tree he could not climb, howling at the moon, hailing the sun with a glad some shout, greeting the night, the rain, and the storm with a plaintive wail. Thus began speech and thought. Such incoherent impressions were bound together by no consecutive reasoning. The germs of the general ideas suggested by impressions necessarily, however, vanished, reappeared as in a mist, suddenly conjured back by the immediate shock of some unexpected sensation.

Nevertheless, when his animal wants were satisfied, and his brain had leisure to look round from the threshold of his cave on the confused picture spread before him, man felt two irrepressible and inseparable certainties arise within him, he knew not where, but still in his personal individuality, an individuality which he defined as vaguely as a hundred generations of metaphysicians have since done. These certainties were those of his own existence and of beings outside himself—in fact, the *ego* and *non-ego*.

To the barren speculations of scepticism, and the puerile and hair-splitting controversies on the origin of human knowledge, he was an entire stranger. The necessity of incessant action and his feebly-developed brain prevented all indulgence in such reveries. All his senses convinced him that he touched and was touched, at times rudely enough. The world did not yet present itself to him as a whole. For him a mammoth was a mammoth, a man was a man, trees and stones were things having certain relations to himself, being either useful or injurious to him. Still, a vague synthesis already asserted itself, and he roughly divided the universe into two sections—himself, and all the rest. But in this *rest* he distinguished imperfectly, or not at all, the animate from the inanimate.

There was but one step from this state to that in which all other beings came to be regarded either as friendly or hostile agencies. And in this very error lay the germ of all subsequent metaphysics, of feticism, myths, pantheism, polytheism, deism, and the divine.

Anthropomorphism was now born, and in fact was for many reasons inevitable. Foremost amongst these was man's complete ignorance of the nature of things and beings, preventing him from distinguishing between intentional actions and indifferent facts. ~~When~~ he stumbled over a stone, when the lightning fell at his feet, or the rain and hail on his naked body, when the cutting winds chilled him or took his breath, when the sun filled him with joy and light, or scorched his skin almost destitute of hair, pain and pleasure alike seemed produced by the will of stone, lightning, rain, and sun, just as were the impressions received by contact with animals and his fellows. Thus referring everything to himself, he was unable to imagine any other kind of existence besides his own.

Lastly, his speech itself strengthened the illusion, its various inflexions indicating the sensations in which object and agent were confused. By using words to express the various conditions of surrounding objects, he necessarily endowed them with his own activity. If, for instance, he possessed a term answering to the idea of cutting, he applied it indifferently to his own action in cutting a branch or a fruit and to that of ice in cutting his feet. He said, *I cut, it cuts*; and as the first form implied in himself the *intention* of cutting, so the second attributed a like intention to the ice. He moved as did the cloud; hence the motion of both was equally intended.

It is needless to multiply instances of such comparisons and instinctive metaphors, in order to appreciate their full significance. By applying to material things his active and reflective verbs, or, at least, their equivalents, he endowed them with life, and made them sharers in his humanity. Such is the foundation of anthropomorphism.

Man spoke to the enraged beasts, to plants, rivers, rocks, to the stars, clouds, and the wind. Receiving no answer, he reiterated his petitions, entreating the one to spare him, the others to continue their favours. Should his wishes happen to be fulfilled, he fancied he had been heard; if his supplications were in vain, he imagined his dumb interlocutors refused to hear his prayer, because

they were angry. Gratitude and fear alike led him to offer thanksgivings or fresh entreaties, and these were followed by presents of such things as would have had most value in his own eyes—food, flowers, incense, even blood and human victims.

Observing that certain attitudes, objects, and formulas seemed to influence external wills and actions, such things he grouped in the category of powerful intercessors. Thus began rites, amulets, talismans, spells. And, hand in hand with surrounding objects and the various aspects of things, the gods of natural religion and of metaphysics, material fetiches and intellectual beings were ushered into the world. Notable events in the life of the individual and of the community, or the places where they occurred, acquired a sacred character, were distinguished by some hallowed mark. Thus, defeat, victory, birth, death, took their place in the crude pantheism of the primitive ages.

But the discovery of fire was the most important fact in the early life of man, a fact intimately associated with the rudimentary idea of the world, and of man's relations with the universe. Enthusiasm for the wonderful treasure, its identification with the solar flames, the hearth and life associated together, and such-like confused associations, the memory of the great discovery kept alive by traditional symbols, personification of life all the more readily suggested by the fact that it appeared alike in all animated beings, belief in the permanence of life in general and then of each individual life, a belief strengthened by fancied apparitions of the dead and by dreams; later on, identification of the human soul with the divine essence, deathlessness of both, distinction between the perishable body and the incorruptible soul, whether restored by death to a common centre, or released from the earthly coils in order to perpetuate its individuality apart from everything making up the sum of individuality—such briefly is the progressive history of fire on the earth.

We omit, without overlooking, the myths, the entangled verbal meshes which clouded and confused all these ideas more or less innate in the artless brain of our first forefathers. We are not now writing a history of the mythologies, or of religions. These

have no place here, except as indicating the first traces of philosophic thought, which, as above seen, has from the first been fundamentally anthropomorphic and metaphysical, preserving this character for thousands of years, in spite of the results of experience and the extremely slow conquests of science.

We also pass over the influence secured from the first by cunning charlatans, who, by watching over the inheritance of rites and formulas, claimed to secure the goodwill of the superior powers for mortals. The hierophant, the sorcerer, the medicine-man, the bringer down of rain, the exorcist—in a word, the priest dates from the cradle of humanity. Hence his paramount interest lies in keeping humanity in swaddling clothes, or bringing it back to that condition, since the child is above all a religious animal—that is, a credulous dupe.

If to these primordial facts be added the elements of climate, bodily wants, the love of offspring, the influence of force, beauty, fear, we shall have a complete picture of human destiny, a summary of intellectual development.

But our business is here with the philosophic conception of man and the universe. While man regarded the world as an aggregate of agencies, favourable or the reverse, speech acquired the power of expressing a few general ideas as simple as they were erroneous. The deities scattered throughout creation were grouped in categories, often marshalled in opposing camps. Thus arose the genii of fire, the demons of the flood, the woods, mountains, and the air. Then came the gods of heaven and the earth, of good and evil, associated with light and darkness, with rain and droughts, gales and tempests, and endowed by the accidents of grammar with form and sex. Endless was the diversity of their unions and fanciful combats, ever connected by some slight current of thought with subjective reality, altogether an interminable effort of the mind.

According as experience, the industries, tribal relations, determined the categories of *natural* objects and of *constantly recurring* events, the first conceptions of the mind, without being effaced, were raised above the reach of observation to a sphere removed

further and further from real life, and gradually became endowed with a special sanctity. Thus all these delusive ideas became characterised by a common quality—the *supernatural* or the *divine*. And when these terms in their turn became personified they constituted a quintessence endowed with all human attributes free from all human imperfections. Thus arose the god of the theodicies, who now stood alone in presence of man whence he emanated, and of nature, which moved on indifferent to his fictitious laws. The definition of the relations between the three terms, God, man, and nature, now formed the idle occupation of the philosophers, which, whether mystical or rationalistic, were all alike anthropomorphic. Of these terms, the last two have not taken precedence till the present century, but this precedence they are destined henceforth to retain unchallenged. The first, empty in itself, and no longer answering to anything in our scientific age, never began to be doubted till an advanced historic epoch, that is to say towards the sixth century before our era. But the doubt arose too late or too soon: too late, because man was no longer capable of shaking off the inherited results of an elaborate process, perpetuated throughout hundreds of centuries; too soon, because science, still in the embryonic state, was unable to strip chimeras of more than a very limited portion of their subjectivity. And yet, by a change of position which still prevails, science is called upon to supply the proofs, the onus of which properly falls on metaphysics. It is now, doubtless, equal to the task, notwithstanding what may be said to the contrary; but for a long time it had nothing but doubts and negation to oppose to a triumphant faith.

That such has been the onward march of human thought will be sufficiently established by the summary we propose to make in this book of the various philosophic systems. That philosophy, in fact, has taken its rise in feticist, polytheistic, pantheistic anthropomorphism, in a word, in metaphysics, may easily be shown by comparing the present civilised with the savage state.

In many places, such as Eyzies or La Madeleine, where flints have been discovered, bones have been collected that had been

drilled and polished, besides teeth evidently intended to be used as necklaces, and specimens of stones foreign to the locality, which have been recognised as amulets, fetiches, talismans, and charms, rather than simple ornaments. These bones and teeth were at ~~once~~ momentoes of successful hunts, emblems of victories, and pledges of the favour of the spirits. The burial-places of those primitive times reveal both the use of fire and of funereal honours, suggesting a vague belief in a future state. In connection with the charred bones are found the arms, the ornaments, and, for aught we know, the remains of the friends or slaves of the deceased. For what purpose were these objects and companions added? Obviously for the chase, and to enable him to procure food in the shadowy hunting-grounds still so familiar to the mind of the American Indians.

These silent witnesses, which it would be a mistake to overlook, restore the history of thought in the Middle Ages of the quaternary period. When impartially questioned, they tell us that man had already instituted at least funereal rites, in commemoration of the discovery of fire; that speech, however rudimentary, had associated fire with life, justifying the supposition that, like fire, life itself may be rekindled in the unknown realms beyond the grave.

Had man advanced beyond this point? Had the dualism of human nature been already invented? One is tempted to believe so. The phantoms of sleep or of day dreams assumed the form of the dead; and these empty shadows, while announcing the destruction of the material body, revealed another and more subtle essence, which had not been annihilated by death. Incapable of analysing the mechanism of memory, men artlessly believed in the survival of a something, an envelope, or immortal residue. At the same time the shades of the dead were different from the later metaphysical conception of the soul. The distinction between the material and immaterial had not yet been thought out, requiring, as it does, a refinement of observation beyond the reach of unpractised intellects. Nevertheless man was already on the road that leads to the immaterial.

We have said that the modern savage is physically and morally the contemporary of those men of the Stone Age. He also has his amulets and fetiches turned to such profitable account by rain-makers and medicine-men. He also believes in the objective truth of phantoms. He conjures spirits everywhere—in the leaves of the trees, in the springs and streams, in all natural phenomena. Lubbock, Tylor and travellers are full of accounts at once establishing his identity with our forefathers of the age of the mammoth and reindeer, and showing that his superstitious conceptions harmonise with the idea of the universe entertained by them.

If we seek in the various stages of civilisation the traces of that mental condition, we shall find them everywhere, for they are amongst the most inveterate and indestructible forms of belief. Who fails to recognise the amulets and fetiches of former ages in the modern rosaries, relics, scapularies, drilled coins, holy water, and consecrated oil, formulas of exorcism, words of consecration occurring in the liturgies and popular sorcery? The doctrines also still everywhere hold their ground which were already implied in the burning of the dead, and the piling of arms, vases, ornaments round their bodies. Fire is the minister of sacrifice. When it darts from the two rods of the Vedic Arani, and is stimulated by clarified butter; when we see it in Rome kept alive under pain of death by the vestals, and associated with the pomp of the Persian, Jewish, Christian, Mussulman rites, whether as a visible deity or a traditional emblem, we can no longer doubt that the great mythical event of those remote ages has preserved to the present time some trace of its pristine efficacy.

All anthropomorphic philosophy, and still more the beliefs which are the artless expression of anthropomorphism, are governed by the idea of *cause*. All those deities scattered by the brain of man throughout the universe were created for no other purpose than to answer the question *Why?* And they answer it after a fashion as dogmatic as it is illusory: illusory, because it is man who answers himself in them; dogmatic, because man is as ignorant as they are.

Why do I move my arm? man asks himself. Because I will : and all is said. Why blows the wind? Why flows the water? Why falls the lightning? Because they will, or someone has willed for them : and again all is said, while all the time nothing ~~has~~ been said. For we have still to explain why man wills, why things should will, and what is will. The series of *Whys* is endless, but the dawning intellect is soon satisfied. And so with the child, whose first reasoning word is *Why?* And when he is told—because (it matters little what)—because it was so willed by God, his feeble mind is satisfied.

The idea of cause is by science reduced to the objective and indifferent idea of succession or concomitance. But by metaphysics it is elevated to a subjective entity. These are obscure terms, which we may here attempt briefly to explain, returning more fully to the subject elsewhere. *Causality* is such a vague, injurious, and barren term, however fruitful in chimeras, that it becomes all the more imperative to reduce it to its real or fanciful elements.

Cause is a fact or a being, but for which other facts and other beings could not exist. Hence the axiom, or rather simple formula of a purely superficial observation : “There is a cause for everything—no effect without a cause.” When we speak of effect we imply a cause, and the axiom teaches nothing, being a mere play of words. Nothing more harmless at first sight than the proposition : “It is evident that nothing is produced apart from the conditions of its existence.” But behind the idea of cause there lurks the most intense and pertinacious anthropomorphism. It was man who developed the idea, and he inevitably superadded to it the idea of will, of a foreseeing *finality*. “Such a thing exists in order that such another may be.” We thus see that it is no longer the *fact* which is the cause, but rather the *intention*, that is, the end or purpose concealed within the fact.

In the first place : “Man is the cause of his acts,” the truth being, that in relation to them he is simply the *conditio sine quâ non*. “The facts of which he is not the cause” (but which, with a fatal readiness, he identifies with actions) “have necessarily for their

cause some being analogous or superior to himself, who reasons and wills as he does." Here we detect the twofold source of the illusion. And so strong is it that it still asserts itself after science has shown that man himself is but a subordinate cause, that natural facts are not *actions*, and that the causes whence they proceed, the causes of which man is himself a special outcome, have no connection with any conscious will such as is the direct cause of all true human *actions*. Hence it is that the metaphysical structure rests on a confusion of ideas, an essentially false perception. We shall see that the purely superficial idea of will, as a human faculty, transformed to an independent and universal cause, is the foundation of all rationalistic systems, from Plato to Hartmann, and including Aristotle, Descartes, Leibnitz, Kant, Hegel, Schopenhauer, &c. There is nothing beyond this in the "type," "pre-established harmony," "efficient cause," "self-subsisting," "idea," the "ego identified with the non-ego," the "unconscious." The attribution of volition to extra-human causes is, in fact, the pivot on which all metaphysics turn.

In the second place comes the proposition: "All outward phenomena act either for or against man," where it is to be observed that they do not act at all, that the effects produced on man by contact with them in no way concerns them. Yet what do we find? From the fancied or misconceived relations of organised matter with the surroundings, incipient logic concluded that man is the centre, the object and end of the universe, and nothing has been able to get the better of this puerile induction: "Everything in the world has been devised with a view to man, either for his good or to his detriment." To this general finality have been added those of a more specific character. Man, for instance, the end of all things, has himself an end assigned to him by the Powers above.

Experience shows that water is composed of such and such elements, and that it flows; that lightning is of such and such a nature, and that it falls; that the hand has nimble fingers endowed with the prehensile faculty, and so on. But metaphysics, interpreting this series of facts, proclaims that water, lightning, the

hand, are preordained to flow, to fall, to grasp. It fails to perceive that this assumed predestination adds nothing to the fact itself, no more explaining it than it explains itself.

It was thought that a whole series of idle questions might be cut short by constituting a *first cause*, the enigmatical motionless mover of Aristotle. But this first cause, itself an effect without a cause, is a mere paralogism, and a confession of ignorance. Reason becomes irrational when applied to subjects outside its province. Beyond the activity peculiar to conscious beings, logic loses its prerogatives; it corresponds only to the concatenation of events emanating from a living and thinking organism, endowed with sensations and memory. Elsewhere it must everywhere give place to simple verifications; and as one of the forms of the animal series, comprised and enclosed in the inevitable succession of events, man himself forms the foremost study of objective science. But this will be seen in its proper place, where an answer will be given to the preliminary objection of subjectivity, that the human faculties are a condition of objective science, and that the latter is an outcome of anthropomorphism, an association from which it will be our endeavour to withdraw it.

But, however this be, long before the appearance of philosophy, properly so called, and of the general conceptions of the world and man, the ideas of intentional causality and finality had taken possession of the human mind. Amongst the oldest traces of speculative philosophy, we shall have occasion to quote some extracts from the sacred records of China, Egypt, Assyria, Persia, and India. It will be seen that observation is here still incomplete and superficial, both as regards the outer world, and all that concerns human nature and the conduct of life. Nevertheless, the frail foundations on which incipient rationalism built up its cosmology, sociology, psychology, and ethics have remained the foundations of modern metaphysics. Nothing has been invented beyond the arguments of Indian pantheism and Persian dualism, the funereal reveries of the Egyptians, the creative God of the Bible, as revised and expurgated by the pietist kings of the seventh and subsequent centuries. There may even be reason to regret the

abandonment of certain doubts, of certain ingenious theories reflected in the Vedic songs, in Homer and Hesiod.

Thus in the "Rig-Veda" there are some hymns which deify the Word, and attribute to it the creation of the gods; others again which regard the gods as successive inventions. Hesiod recognises in the earth "the ever-firm seat of men and gods." Homer's conception of destiny is correct enough, only the two vessels in which he confines good and evil are left to the caprice of Jupiter. In his famous "Nekyomanteia" he defines very forcibly the difference between life and death, affirming the extremely shadowy nature of the manes, into which the blood of the victims alone has power to infuse a semblance of life. But none of these ancient sages perceived the regularity and independent character of what have since been called the *natural laws*.

§ 2.—*Starting-Point and General Tendency of Philosophy amongst the Peoples of Remote Antiquity (from about the Thirtieth or Fortieth to the Seventh Century).*

CHINA.—We cannot say what value is to be attached to the dates to which Chinese tradition refers the composition of their oldest sacred writings. But this people having lived till the time of Buddha in almost total seclusion from the rest of the world, no importance can be attached to their chronology, and it will suffice for us to know that certain writings represent for them their oldest mental condition. Amongst these is the "Y-King," subsequently commented upon, if not re-written, by Confucius.

According to M. Panthier, the "Y-King" ("Book of Transformations") consists of two texts, one attributed to Fu-hi (3000 years before the Christian era), the other composed about the twelfth century. As far as it is possible to interpret writings composed exclusively of continuous or broken lines, and a doctrine enveloped in an arithmetical symbolism, the mythical Fu-hi failed to grasp the unity of the world, and stopped short of a binary system, of which the two co-related terms are heaven and earth.

He is anterior to all mythology; and in the "Y-King" no reference is made to spirits, genii, the soul, a future life, or a god, creator, and independent of the world. Here the fetich element is wanting, but not the metaphysical, for heaven and earth are regarded as beings. From this we see that fetich words or entities may have preceded fetich objects; and that fetichism, like the various deistic forms, is merely a form of a more general error, that of anthropomorphism.

In Fu-hi's eyes heaven is the superior power, the intelligent providence on which human events depend, and which in this world rewards or punishes good and evil deeds. The hieroglyphic for heaven represents at once the male principle: motion, energy, light, the sun; while the sign of the earth stands for the female principle: weakness, cold, rest, darkness, the moon, everything, in fact, implying inferiority, imperfection, the passive state.

All things are produced by composition and perish by decomposition. By substituting *forms* for *things* we get a simple and profound conception. The two terms taken together—generation and dissolution, existence and non-existence—express the changes or transformations of all things.

According to the arithmetical symbolism, apparently a later addition, the odd numbers, whose base is a straight line (—), heaven, unity, are *perfect*, which answers to the dictum: *Numero deus impari gaudet*. The pairs emanating from duality, or the broken line (— —), emblem of the earth, are *imperfect*. From their various combinations spring beings, the stars, the seasons.

After the "Y-King," which is stamped with a remarkable naturalism, there is little to quote beyond the fragment of the "Shu-King," of the "Yu" (2200?), composed by Ki-tseu (1116–22), and pervaded by the most childish incoherence. Five great elements: water, fire, wood, minerals, earth; five active faculties: attitude, speech, sight, hearing, thought; eight principles or rules of government; five periodical things: the year, moon, sun, stars, and planets; constellations; astronomical numbers; imperial pinnacle or fixed pivot of sovereignty; examination of doubtful cases by seven prognostics; observation of heavenly phenomena, or

astrologies and six calamities—such are the nine divisions of the *Five Doctrine*.

The *Thou* like the Art of the Chinese, would seem to lack perspective. It is either lost in endless details unconnected as a whole, or else, viewing everything in a sort of haze, it ceases to grasp the realities. In both cases everything returns to the original plan, in which it is either confounded or divided infinitesimally. Hence arise two fundamental schools, the one positive and moral, never leaving the sphere of social relations and the public administration; and the other neglecting the earth and men, the contingent and the material, in order to become absorbed in the unity, the identity of existence and non-existence; and which, starting from a mystic pantheism, arrives at serenity through apathy, at virtue through ignorance—in a word, at absolute nihilism. The first school, essentially utilitarian and useful, is the very soul of China. Its principles, adopted by the emperors and lettered classes, have regulated the public and private life of the Celestial Empire for two thousand four hundred years. Confucius, its founder, is still revered as a beneficent genius in the fifteen hundred temples and upwards dedicated to his memory. The second, barren and disastrous though it be, still finds adherents. It has powerfully contributed to the introduction of Buddhism and monasticism. M. Panthier is disposed to give it a Western origin, believing that its founder, Lao-tseu, brought it from India, and he looks on its dogmas as opposed to the national genius of the Chinese. But this view may well be questioned, judging at least from the popular success of this nihilism, and from the rapid spread of Buddhism, which, in the midst of apparent differences, presents such striking relations with the extatic wisdom on which Lao-tseu rests the supreme good.

A feature common to both schools and to those derived from them is the absence of a definite deity, endowed with distinct and personal attributes. In Chinese, *God*, the category of the divine, has no proper name. What Lao-tseu calls the *Fao* is nothing but a metaphysical principle, the eternal repose, the motionless mover, indifferent to everything, whence all things emanate and whither

all things return, the identity of existence and non-existence. Doubtless many of these features may apply to the god of Parmenides or even of Paul; but they never constituted a real personality. Confucius is still further removed from the formulas of theologians. He contents himself with referring to the conceptions of the "Y-K'ing," and accepts the superiority of heaven. But his metaphysics themselves remain in a rudimentary state, his chief domain being ethics and the conduct of life. Nor does he trouble himself much with the nature and origin of man, taking things as they are.

This is assuredly of itself an original feature, all the more remarkable that it seems to belong to the whole Mongolian race of Eastern Asia. We shall find amongst them fetiches, superstitions of every sort, the worship of ancestry, and the liturgical forms imparting to religions their outward character; but we shall find amongst them no traces of a deity.

Lao-tseu seems to have been born at the close of the seventh, Confucius in the middle of the sixth century. Hence they are the contemporaries of Thales, of Anaximander, and of the Ionic school. If we have mentioned them here, it is because their teachings have taken no part in our development, and because, being unable to embrace everything, we shall later on rest satisfied with referring to them when treating of pantheism, nihilism, scepticism, probabilism, and other kindred systems.

EGYPT.—Thanks to Young, Champollion, and their successors, the extreme antiquity of Egypt is now matter of history. It gives evidence of a civilisation at once very defective and very refined, but far more ancient than that of the Chinese. Three of the great pyramids belong to the fortieth century before the Christian era.

In the days of Cheops, Chephren, and Mycerinus, mythology, theology, and the liturgy were already established and embodied in a system of doctrine. Here as elsewhere the gods are anthropomorphic personifications, either of material objects: the crocodile, hippopotamus, ox, cat, the Nile, sun, moon, &c.; or of categories of phenomena: fire, light, darkness, drought, heaven and earth; or else of human thoughts, good and evil. The myths are also, as

elsewhere, borrowed either from analogies between the attributes of the gods and the local animals, or from human actions, the power of the kings, and often from the family and procreation. The belief in a sort of life after death is firmly established.

It is probable that in these remote times, that is, long before the traditional deluge, metaphysics had already been much occupied with this pantheon, and funereal illusions had grouped the gods in triads, and had arrived at the dualistic conception of a good and an evil principle, engaged in an eternal struggle.

But it is not perhaps surprising to find that there are absolutely no grounds for asserting, as Maspéro does, that the unity of the godhead has been the starting-point of Egyptian philosophy. He draws all his arguments from the funereal ritual, to which he assigns no date, but the text of which in its present form obviously belongs to a relatively recent epoch.

The very formation of the Pharaonic monarchy implies the primitive incoherence of the myths. According as the accession of the various provinces brought about political unity, the gods and goddesses made their appearance in the pantheon. This process is rendered all the more probable that it was the same with other nations—the Hebrews, Indians, Greeks and Romans. Hence it is impossible to regard as primordial the conception of *Nu* (*Buts*, *Muth*), of the ocean of things, of Ammon, issue of a principle at first neutral and afterwards considered as female, of Horus, son of Ammon, and, like him, husband of his mother; and who in his turn became the pivot of a similar triad, indefinitely reproduced in a succession of fresh series. Even before the refined mythology, much more akin to pantheism than a pure monotheism, must be placed the dualism inseparable from all incipient philosophies: the idea of an eternal struggle between day and night, humid warmth and barren drought, good and evil, represented by Osiris and Typhon, by Ammon and Set. Like all the nations of antiquity, Egypt has had its myth of the Titans, of Ormuzd, of Ahriman, of Jehovah, and Sheitan. Without further reflecting on the real nature of good and evil, which are merely two different aspects of sensation, the Egyptian sages regarded them as primordial, irrecon-

cilable facts, antagonistic to each other, pervading all nature as well as human existence. Hence they naturally assigned the office of instigators of good and evil to the divinities of heaven and earth, of day and night.

They conceived ethics as a summary of practical rules, apart from all religious philosophy. This is clearly shown by the "Prisse" papyrus, containing the works of Kaquimna and Ptahotep, two authors of the third and fifth dynasties, but which doubtless were not committed to writing till the beginning of the twelfth, or about the year 2500 B.C. Kaquimna's moral code and Ptahotep's "Instructions" are limited to announcing the utility of science and of private virtues, in order to attain salvation by the knowledge of good.

But however this be, the gods of Egypt are not forms and reduplications of one and the same deity under diverse names. They are local and scattered elements, the aggregation of which suggested the invention and hierarchy of the triads. Nothing makes this more evident than the primacy attributed to Ra, to Ptah, Shu, Seb, Osiris, Ammon, Hor, Hapi, each in his turn, according to the preponderance of the tribe in which they had been chiefly and independently worshipped. The same holds good in the case of the goddesses.

At the same time, the importance of the ritual and its relative antiquity must by no means be undervalued. Besides the superstitious practices, the antiquity of which is confirmed by the oldest tombs, it reveals a later system of metaphysics which, while seeking in such practices a deeper meaning, connects them together in a sort of rationalistic synthesis. Maspéro has ably summed up these doctrines, which are quite analogous to those that the genius of India, Persia, and Greece sooner or later derived from incomplete speculations on nature and humanity. Sixteen or eighteen centuries before our era Egypt had worked out theories which our professional metaphysicians still regard as the *ne plus ultra* of wisdom.

Man is composed of an intelligence (*Khu*) connecting him with the divine nature, and of a body partaking of the material element, and sharing in its infirmities. This intelligence, clothed in a

subtle light, is of itself free to roam from world to world, to act on the elements, to regulate and fertilise them. In the body it renounces this transcendent faculty and this fiery quality, which would consume its carnal dwelling. It puts on a less perfect substance, though still divine, *Ba*, or the soul, and communicates with matter through an inferior agent, *Nirou*, spirit or breath. Thus *Bu* is the abode of *Khu*, and *Niwon* of *Ba*, while *Khut*, the body, encloses *Nirou* and the rest, the whole constituting man. Body, spirit, soul he has in common with animals, while intelligence forms his special attribute.

A struggle goes on between the intelligence and the body, seat and fomentor of all the passions, the spirit and the soul taking part now with the one now with the other. When the intelligence triumphs, it aspires to good, and through the material coils anticipates the eternal splendours. After death the spirit withdraws into the soul, the blood congeals, and the body, thus abandoned, would be dissolved unless endowed with a sort of immortality by being embalmed. The intelligence, impeccable in itself, resumes its luminous envelope, and becomes a genius or *δαίμων*. The soul alone, the hapless *Bu*, is presented before Osiris-Kent-Ament, surrounded by the forty-two members of the jury of the lower regions. Accused by its conscience or *heart*, and by the evidence of its life, it is either condemned or acquitted; the execution of the sentence being entrusted to the intelligence, which, armed with the divine fire, re-enters the wicked soul, scourges it with the lash of its sins, and consigns it to the fury of the conspiring elements. The condemned soul takes up its abode in some human body, which it tortures, overwhelms with ailments, drives to murder or to madness—both equally criminal. After many centuries, its sufferings abate, and it undergoes or rather receives its second death, final annihilation: in which case it will be asked: To what purpose the punishment? But the just soul, admitted to the contemplation of the supreme truths, passing from trial to trial, from form to form, triumphant over evil, that is, over Typhon, who, Proteus-like, assumes a thousand shapes, and assimilated to Osiris, accomplishes in the fields of *Adlu* the ceremonies of the mystic labours. It

mingles at last with the choir of the gods, and gravitates around the perfect being; at first with the wandering, and finally with the fixed deities. It is henceforth a pure intelligence, sees God face to face, and is absorbed in Him. And again it will be asked: To what purpose? Is not this still extinction?

In truth, all the psychologies, all the theodicies partake of the "Ritual of the Dead" as here summarised. All their subtlety and all their final emptiness are revealed in it. Without serious loss we might here conclude the history of the idealistic, rationalistic, pantheistic systems, and the rest of them. With but few variations, they all harp on the same chord, so characteristic is it of metaphysics to revolve in the same vicious circle, to tramp and never make a step in advance! But reality will ever protest against such chimeras, and this is the true lesson to be derived from this abstract of human errors. Behind the triumphant chariot of metaphysics a voice is ever raised, a voice that says: "Thy victory is a dream—thy pride a snare!"

A hymn quoted by Drugsch shows plainly enough that Egypt scarcely believed in the scholasticism of its teachers. Thus higgling with death did not blind it to the eternal sleep of the *Ament*, and to the emptiness of those incorporeal forms which "no longer recognise father and mother, and whose heart is no longer touched for wife and children." They depart to a god whose name is "All-death," who little heeds gods or men, great and little being all equal for him. But the infatuated ones did not the less continue to follow the chimera of justice beyond the grave. They persisted in defending their fair name; they advanced towards Osiris, crying out: "I am pure! I am pure! I am pure!"

The finer portions of the "Book of the Dead" (ch. xxxv., Love of our Neighbour) give proof of a very lofty mental state, and Egypt might be said to have arrived, three thousand years before our era, at the dialectics of Thomas Aquinas and the dreary mysticism of the "Imitation of Christ." But it could go no farther. Science did not touch it with her magic wand, and all the springs of action have remained for ever broken in this mummified people after an embalmment of six thousand years.

The fate of Egypt serves to teach the abstracters of quint-essences that the most refined rationalism, the most abstruse mysticism, can contribute nothing towards the vitality of nations. This vitality is elsewhere to be sought—in the real knowledge and profitable use of the centre whence man has sprung, where he dwells, whither he returns. The science of Egypt never succeeded in rising above a certain astrological astronomy, nice mathematical speculations, ingenious industrial processes. It has passed by the world without knowing it. Its by no means inconsiderable influence has not failed to be injurious both to the genius of Greece and to the energetic spirit of the Romans.

CHALDÆA, ASSYRIA, SEMITISM.—Chaldæa, and its heir, Assyria, to which the Phœnicians and the Hebrews were indebted for their first education, form another group that reached a certain brilliant civilisation, and a science whose importance has been greatly exaggerated, though scarcely surpassed by any other nation of antiquity.

The Chaldæans claimed a fabulous antiquity of 691,200 years before the deluge of Xisuthros. For us it is enough that certain inscriptions, collected in the valley of the Euphrates and Tigris, appear to be anterior to the year 2300 before our era. These ancient records, and many others, bringing us down to the Persian period (sixth century), reveal extremely complex religious and cosmological ideas, developed out of the most heterogeneous elements, resulting in a chaos all the more difficult to reduce to order, inasmuch as the Egyptian and Persian mythologies have at various epochs superadded their contingent of fictions and philosophic conceptions.

The reader is referred to Maspéro's "*Histoire Ancienne des Temples de l'Orient*" for the legendary or real history of Chaldæa in the south, of Elam in the east, and of Assyria in the north and west. Recent discoveries have justified MM. Oppert and Lenormant in concluding that the Sumerians and Accadians, two people named "Turanians," for want of a better term, introduced into Babylonia a language, a writing system, and myths, partly adopted by another race, that of the Kushites, dwelling on the shores of

the Persian Gulf and of eastern Arabia, apparently the first advanced wave of the Semites. Later on, on the north and west, other Semites, the Assyrians, who had settled in the middle Euphrates and Tigris, superadded their traditions and their gods to the Chaldean pantheon, already complicated by the conceptions of three peoples blended in one. But while accepting the arts, the writing system, and tenets of the Chaldeans, the Assyrians preserved and caused ultimately to prevail their own purely Semitic speech.

The bilingual inscriptions throw some light on the intellectual development of the Proto-Chaldeans, Accads, and Sumerians, mixed with Kushites. But we are very far from possessing the monuments of the primitive thought either of these Proto-Chaldeans or of these Assyrians. The gods of the various tribes, doubtless after long leading an independent existence in a very ordinary and natural incoherence, appear already grouped in triads and in hierarchies, though still of a shifting character, at one time under a male ruler or celestial deity, at another associated with the humid principle, sometimes neutral, but more frequently personified by goddesses who entered by capricious unions into the family of the pure gods, masters of the heavens. At the bottom of all is again seen the struggle, or at least the rivalry of the two irreducible principles—that is, irreducible in metaphysics—which ever recur under different names even in monotheism itself.

It would be impossible to refuse to the supreme gods of Chaldæa, *An* and the fish *Oannes*, of Babylonia, *Ilu* (the Biblical *El*; *Bab-ilu* = the city or gate of *Ilu*), of Assyria (*Assur* and *Nimrod*), the metaphorical and material origin claimed for *Sin* (*Lunus*, the male principle of the *Luna* = moon), for *Sumus* (the sun), *Biu* (the atmosphere), the sidereal divinities, such as *Adar* (Saturn), *Marduk* (Jupiter), *Nergal* (Mars), *Nabu* (Mercury), *Istar* (Venus), *Akhmun* and *Kimmuk* (constellations), or even *Lagamar*, *Susinka*, and *Martu*, the West, *Shadu*, the East, *Bel-aura*, fire, *Serakh*, the harvests, &c. All are objects, phenomena, or series of facts personified, transformed to personal deities, and endowed with attributes borrowed from their original nature.

With them are associated intermediate powers, such as *Bel*, perhaps an old name for the sun, charged with the functions of the Word (*Λογος*), *Nuuh*, or Providence, besides companions representing their feminine aspect, and their alliance with the humid and earthly principle, of which presently. In fact, *Anath*, *Anit*, and *Anaitis*, the consort of *Anu*; *Belit* and *Mylitta*, wife of *Bel*; *Astera*, corresponding perhaps to the male *Assur*, were confounded with the great goddess *Earth* or *Venus*; *Star*, *Astarte*, called also *Zarpanit*, wife of all the gods, mother of all beings, in whom is centred the gross philosophy of those wanton peoples, the pivot of their worship, the principal object of Assyro-Chaldean veneration.

It is no doubt true that all peoples have been struck by the paramount fact associated with the perpetuity of life, and generation, with all its main and special features, has supplied all religions with myths, emblematic ceremonies, endless allusions. Nor could it be otherwise, gods and goddesses being themselves nothing but man, woman, and child, transformed and substituted, with all their ideas, their reason, folly, and passions, for the various aspects of reality. But anthropomorphism has never betrayed its true character more cynically than in the Assyrian and Chaldean pantheons. Here the popular imagination is no longer entertained by the nobler qualities of the brain, or of what is called the heart. Here we have nothing but the lewd animal appetite, fecundity pure and simple, without love or virtue, the prolific energy and its organs. Man, heaven, the deity himself, is nothing but a *phallus*; woman, the girl, the mother, nothing but a humid *xrēis*. Every rock, tower, or hill, is made to symbolise the male; every gorge, spring, grassy morass, is identified with the female. The king of the gods is a *Hermes*, the queen a *Barathrum*.*

The state of mind revealed by such a conception of the universe obviously corresponds to a social condition which our races have never known, or have rapidly passed through, a long period of polyandria, in which the mother was the centre and only bond

* On the phallic and chthonic worship the reader may consult Jules Baignas's "Origines de la Religion."

of the family, in which paternity was subordinated to maternity. However monstrous such an arrangement may now seem to us, its *raison d'être* is not far to seek. It has left its traces even in the modern European codes, which refuse to the natural child the right to inquire into its paternity. Before the institution of marriage, apart from the conventional and consecrated monogamous union, there were none but natural offspring and mothers, the father being uncertain. Hence, the foremost deity was Istar, who remained the principal divinity of the Chaldeans and their successors. It was in vain that the celestial and sidereal gods were concentrated or subtilised into one supreme being. Anu could do nothing without Anit; Bel was fain to conform himself to the sensual liturgy of Mylitta; Ormuzd himself was unable to suppress her. Hence, human sacrifices, talismans, magic formulae, at once innumerable and ridiculous, while no practice was so hallowed and efficacious as prostitution.

Herodotus beheld the system so to say in working order, and has left us a vivid picture of it. He could scarcely feel surprised by the rites of Anaitis; for, if he was unacquainted with the orgies accompanying the worship of Siva in India, and the female mysteries, celebrated with closed doors in the cells of the temple of Javeh, on Sion, Greece and Asia Minor offered numerous analogous examples. The Indian mother, Cybele, the great goddess, and Aphrodite were but other names for the Babylonian Istar, and the Astarte of Phœnicia. Round about their sanctuaries, which would nowadays be called by a very different name, the sacred groves were the scene of religious orgies, regarded as a homage paid to fecundity and the generative powers. The Chaldeans and the Somites let loose on the West these wanton rites, the intoxication of the senses, and, by a natural transposition, mystic ecstasy. Although it is at present fashionable to attribute to them the origin of the Hellenic arts, sciences, and civilisation, the evils for which we are indebted to them largely outweigh the services they may have rendered.

It is not to be supposed that the religious aberrations of the Chaldeans are foreign to the history of philosophy. They proceed

in the first instance from a metaphysical conception, since they converted a human or rather animal action, peculiar to living organisms, into the law and cause of all nature. Nor do they set aside any of the consequences of anthropomorphism. They even produce it quite as logically as more noble doctrines might. They virtually and *de facto* contain the whole polytheistic, pantheistic, and monotheistic series, all the revelations and atonements, all the dualistic theories of good and evil, the beliefs in a resurrection and justice beyond the grave.

The immortality of the soul had given rise amongst the Chaldeans to various legends and epopees. Istar "had a temple at Borsippa, composed of three sanctuaries—those of the soul, of life, and of the living soul" (*J. Oppert*). Xiuthros, like Romulus, had been carried up after the deluge; and, without passing through death, had been admitted to eternal life amongst the gods. The region of *Arullu* (Land of gold), towards the northern parts, was regarded as the abode of the dead.

A curious text describes the descent of Istar to the lower regions, where is detained her son, Turzi (a Thammuz, or Adonis). Here Istar presents herself as the daughter of *Lunus* (Sin), and goddess of war. Two Istars, those of Nineveh and Arbela, would appear to have been joined together, and confused in the same epic fiction. Istar is spoiled and confined by Allat, goddess of hell. But after the enforced combat between the upper and lower world, between Light and Darkness, she is released by the messenger of Samas and of Sin, of the moon-god and the sun-god.

The oldest portions of the Bible are obviously indebted to Chaldæa and Assyria for its twofold conception of the world and of human life, at least the present if not the future; for it is doubtful whether the Jews ever dreamt of the immortality of the soul or spirit, that is breath, as they called it. But notwithstanding the contradictions, suggesting an imperfect fusion of the legends, the clearness of a text written in a historic period (some time between the tenth and fifth centuries), impart a considerable value to the theories of Genesis. They may be regarded as the faithful expression of the Judæo-Aramæan beliefs prevalent a short time

before the age of David and Sargon. The narrow and jejune mind of the Jews has simplified the incoherent ideas of the cosmogonies in which the traditions of the Sumerians, Elamites, Kushites, and Assyrians were mingled confusedly together.

We are all familiar with the first chapters of Genesis, already strongly marked as they are with the dualistic and monotheistic conceptions, and in which the traces of the previous naturalism and polytheism betray themselves only in a few isolated expressions. There is no occasion to discuss the cosmogony that has reached us under the name of Moses. Taken as a whole it is a theory remarkable alike for its distinctness, and for a certain approximate appearance of truth, but which is beyond the scope of science. It has merely a historic value, such as that of the accounts regarding the geographical distribution of the peoples of antiquity.

The creator, at one time the gods (*Elohim*), at another God (*El, Jehovah*), whose breath moves on the face of the waters, is rather a demiourgos who shapes, for chaos (*tohu-bohu*) preceded order.

The formation of man and woman is a nursery fable, pleasantly introduced into the picture of Eden, that mythical garden of the Golden Age, already familiar to the imagination of the Greeks, and which, like so many other legends, comes directly from Persia.

The tree of good and evil, the fable of the serpent and of Satan, the notorious dogma of the fall, which has played such a fatal part in the subsequent development, the curse launched against science and work, and already containing in germ the famous words: "Blessed the poor in spirit," and "the lily of the fields, which toils not neither does it spin," are all so many idle explanations of what is called the problem of good and evil, so simple to the modern scientific mind. It is needless to point out that naught is good or evil in itself, but only in its relation to man. This alternative is but one of the general characters of sensation, and one of the consequences of physical, moral, and social life.

On the relations of man with the national God (*Jehovah*) raised to the position of sole and universal deity, the Jewish doctrine is neither more nor less contradictory and childish than all other metaphysical theories. On the one hand, *Jehovah* is all-powerful;

on the other, man is endowed with absolute free-will—two utterly irreconcilable propositions. Besides, the human reason remains incapable of understanding the motives of a providence which kills and vivifies, rains, blows, and thunders at its pleasure. Hence this reason has but two refuges, doubt and faith; the mingling of which is the leading feature of the extremely remarkable and no less beautiful Book of Job. Scepticism will acquire the ascendant in Ecclesiastes, but many ages later, say about the third or second century before our era. Faith inspires and upholds the prophets. Between the two, superstition in all its forms never ceases to linger in the Jewish thought, and from the *high places* of Israel and Samaria, whither it has taken refuge, it makes constant irruptions into the narrow domain of Judah.

Is it necessary to add that the absolutely rudimentary philosophic system of the Hebrews is on much the same level as the most vaunted and refined monotheistic doctrines? We everywhere meet with analogous cosmogonies and ethics, either independent of the Bible, or based on a long biblical education. There is nothing, except perhaps the summary proceedings of Revelations, that has not been either spontaneously adopted or invented by every founder of a religion, and that does not more or less visibly affect every rationalistic system. But in as much as the Bible has, by a singular fatality, become the foundation of all instruction, and the tyrannical auxiliary of Western thought, we shall have constantly to revert to this brief survey.

THE INDO-EUROPEAN OR ARYAN RACES: THE ARYAS OF INDIA.—At last we reach regions more familiar to our intellectual habits, and returning, as it were, to our own domain, we gather in the Vedas and the Avesta, in Homer and Hesiod, the elements of Aryan thought. Our true spiritual forefathers seem early and of themselves to have arrived at a superior level. They appear on the scene of the world later than the Egyptians, the Sumero-Chaldeans, the Chinese and the Semites of Mesopotamia, since they subdued and finally replaced them in the onward march of humanity. But isolated at first on the upland valleys, of the Great Pamir, between the Yaxartes and the Hindu-Kush, before their migrations towards

the south and west, they were not materially influenced by the races separated from them by lofty ranges and vast deserts. Their pastoral tribes were freely developed, imbued from the first with an uprightness of mind, even in error, which was foreign, especially to the Turano-Semites.

Amongst them the family seems to have been more rapidly constituted, and on a more healthy basis than along the marshy shores of the Persian Gulf. Their oldest books have preserved no trace of the polyandrian state in which woman was the only bond of the family, and which by Lennan, Bachofen, and Baissac, has been regarded as the origin of all human societies. If these gross conceptions ever found any real application in Greece and Italy, they must have been introduced by alien ethnical elements already settled there before the arrival of the Aryans. The Indo-European mind was untainted by those phallic imaginations, those cults based on the worship of female and terrestrial fecundity, on the supremacy of the humid principle, on the deification of the sexual organs, and of low animal obscenity. It doubtless borrowed them in subsequent ages, but if it was not unfamiliar with the inevitable metaphors that gave rise to this simple and debased symbolism, it derived therefrom myths of a secondary order only, or else comparisons full of nobility and poetry.

Ever prone to admire the great phenomena of nature, the Aryan mind at first celebrated them with hymns in which anthropomorphism appears merely as a transparent veil. Personality did not enter into the impalpable body of the gods, the moral and human attributes were not associated with the figures of Dyaus, Varuna, Agni, Indra, Mitra, Aryaman, until the gradually obscured metaphors became transformed to historic myths, when the identification of the terrestrial fire and the domestic hearth with the solar, heavenly, divine light, brought about a specious confusion between the human soul and the universal energy, between life and motion.

The hymns collected in the Rig-Veda, were for the most part composed in the Sapta-Sindhu (the Panjab), amidst the seven eastern tributaries of the Indus, while the Aryan conquerors were

slowly descending towards the Ganges and the great peninsula. They are not the common property of all the race that has civilised Western Asia, Europe, and America. They are in fact posterior to the great separation of the Aryan peoples and tongues; nor is the language in which they are composed the source whence sprang the various Teutonic, Slavonic, Italo-Hellenic, Eranian branches, although it has remained more faithful to that common mother-tongue. It is already Sanskrit, an individual form of speech richly endowed and firmly constituted—the oldest record of Aryan speech. No inscription, no other text dates farther back. Already taught and expounded, already regarded as sacred books before the eighth century, their composition and oral recitation must be referred to some period between the fifteenth and ninth century before our era. The idea expressed in the Vedas, the myths therein elaborated, although already assuming a national form, none the less contain all the philosophic and religious elements carried away on their migrations by the kindred peoples. In them is found the echo of Aryan thought, not in its most primitive form, but in that which it had assumed in an extremely remote epoch, before the separation of the Indo-European tongues.

There can be no doubt that the social, moral, and intellectual state represented by the Vedas is to a great extent anterior to the more metaphysical theories of the Avesta, the confused superstitions of the Kelts, Teutons, and Slavs, as well as to the cosmogonies of the Greeks and Latins, notwithstanding the extremely analogous character of these latter. It differs essentially from the Semitic conceptions, in which from the remotest antiquity the tendency is clearly felt for a blind faith in a creative and providential power, alike inexplicable and irresistible. In it is revealed an aspiration peculiar to the Aryan genius, towards naturalistic pantheism, compatible with observation, and science, that is to say, with progress; while we here and there detect a clear understanding of the illusions whence sprang the gods. Through the want of experience, the efforts of the imagination indulging in subtle reveries, the mixture of races resulting from conquest, the superstitions borrowed from strangers, and innumerable other complicate and complicating

circumstances doubtless diverted this clear intelligence to polytheistic and metaphysical combinations. Doubtless the simple metaphors characteristic of the ancient Vedic poetry, losing their transparency, became obscured in the Brahmanic triads, in the systems associated with Vishnu and Siva. But if we suppress in thought all subsequent development and all deviations, keeping strictly to the Rig, we shall find the Aryan mind four thousand years ago nearer to the modern ideal than all the religions and philosophies it gave rise to, and consequently still more so than the doctrines of Semitic origin, such as Christianity and Islam. The immense interval separating us from it might almost be overlooked, in which case we might pass without too violent a transition directly and easily from the Veda to the age of criticism and science, just as we pass without difficulty, and in a moment, from the most imaginative poetry to the strictest observation of the real world.

The Vedic or Aryan religion, in which were summed up the first relations established by language and reason between the human intellect and the outward world, contains no silly mysteries, no preposterous dogmas, no abstruse entities. No doubt it is ruled by anthropomorphism, but it admits the objective and concrete existence of the natural phenomena. It hovers over the universe like a gossamer veil, adorning its various aspects, or like a shadow toning the picture.

The notion of heaven and earth, the great parents of the world, journeying together, and ever young, seems to have preceded all other general ideas. The invention of this fundamental pair was the first intellectual effort to connect together all partial observations and give unity to the complexity of things. But earth being better known and subjected to our more immediate influence, was soon relegated to the second place, with the rivers, springs, and mountains; and Greek mythology seems to date from this period, of which it retained the impress. The majority of the gods were henceforth grouped in heaven—the vague expanse, the boundless space named Varuna (Ouranos). Here free scope was given to the winds and storms, to Vayu, Indra, Rudra, the Maruts, Gandharvas, and the upper waters (for the primitive Aryas had no

knowledge of the ocean), the sources of the rivers, the *apsaras*, or nymphs. Here revolved, contended, darted their fiery rays, the sun (*surya*), the moon, with aurora (the dawn) and twilight, the rainbow, lightning, and the stars; whence sprang the general idea of fire and light, of Agni, Mitra, Aryaman, &c. All these beings, whether concrete or abstract, were naturally endowed with quasi-human qualities and intentions, clothed with attributes corresponding to deeds and mythical adventures. They presided over the dispensation of good and evil in life; they were approached with prayer, homages, and offerings, provided by duly appointed intermediate agents. Prayer itself, and its instrument, speech, were deified as powerful intercessors, as were also such accessories as the sacrificial stream, Soma, the sacred fire, the Arani that produced it, and that plays a leading part in the symbolism of this religion.

The struggles of wind and storms, of the sun and the clouds, of light and darkness, a struggle compared with the ancient combats for the possession of cows and springs, and complicated by a thousand incidents borrowed from the wars on earth; the various aspects of the atmosphere, the hours and the seasons, gave rise to a crowd of allegories scattered throughout the universe—the myths of the Titans, of Aurora, and the entire theogony. The victory of the principle of light, Dyaus, Varuna, Indra, Agni, &c., was sung with a marvellous wealth of expression; and the greater part of these legends were transmitted from community to community, from tribe to tribe, even after the increase of population began to set the multitudes in motion. It was thus that the fall of the chariot of Aurora in the Hyphasus, a Vedic metaphor invented or revived when the Indo-Aryas were already migrating in the Panjab, passed on to the Danaï and Ionians, and served as the theme for the fable of Phaeton; and so with innumerable solar myths.

The gods were still at this period nothing more than figurative expressions, endowed by man with his life. The great name itself (Dyaus, Zeus, Jovis, Dius) meant nothing more than day, light, the bright ether: *div* still living in the Latin *dies*. Light, the supreme good, readily identified with power, wealth, procreative

force (but not creative *ex nihilo*), became the attribute of all important beings both in heaven and on earth. Thus the rich man, the king, acquired as many claims to the title of *deva* (illustrious) as the celestial genii themselves.

By constantly distinguishing and personifying all the phenomena and forms attracting their young eyes and imperfect intelligence, our fathers feared lest all things might ultimately become endlessly subtilised and vanish in dust. The conception of heaven and earth, as the first stage; that of the struggle between the powers of day and the demons of darkness, as the second, no longer satisfied their philosophy. They early endeavoured, though doubtless after the separation of the tongues, and when already settled on the Ganges, to connect in one vast synthesis all that had been decomposed by their young analytic powers. By the side of countless divine family groups they placed a sublime abstraction of all concrete matter, Aditi, the eternal essence, coextensive in its immensity with all that existed or could exist. Heaven and earth, men and gods, thus became portions of Aditi; for Aditi is what has been, what is, and what will be. Such is the third stage; and it may be asked: What is still wanting to this sublime formula, to this true and poetic edifice, built up by dawning reflection? An efficient artifex? But this is found in human intelligence.

The idea of a universal father, of a supreme master, though not alone and without rivals, an idea vaguely suggested by the example itself of the Aryan family, already monogamous and based on paternity, is not developed till later on. Although this *logical* worship of what constitutes our greatness—personality and volition—is the ultimate result of anthropomorphism, it is doubtful whether they practised it before the separation of the Aryan tongues. It comes to the surface only in the most recent Vedic hymns, in which the nature of the supreme essence, of the first metaphysical cause, is still nothing more than the subject of questions that remain unanswered. Brahma, one of its names, and which seems derived from Brahman—prayer that first evoked and then created the gods—a simple form of Agni, the mediator, is altogether an Indian conception. He is the son of Meditation,

and the mark of the ruling sacerdotal caste, of the Brahmins or priests, of those who uttered the sacred words.

Here is, amongst others, a famous hymn, in which, doubtless, occurs one of the earliest instances of metaphysical speculation on the supreme cause, Paramatma, the primeval breath, the soul of the universe:

"Then was neither the visible nor the invisible. No upper region, no ether, no heaven. Where was this envelope? In what bed was the flood? Where the depths of the air?

"There was no death, no deathlessness; no herald of night and day. *He* alone breathed, producing no breath, wrapped in self. Nought but he existed.

"In the beginning darkness was shrouded in darkness; water was void of motion; all things were co-mingled. The *Being* reposed on the bosom of this chaos, and the *Great Whole* was born in virtue of his piety.

"In the beginning love was in him, and from his breath sprang the first seed. The sages, by the work of intelligence, compassed the union of the real and the apparent being.

"Who knows these things? Who can tell them? Whence came beings? This creation?—who knows how it exists?" (Langlois, Lecture vii. hymn 10.)

Here we have metaphysics arrived at a stage beyond which they never made a further step.

The Aryan worship, although soon mingled with superstition, does not seem to have been originally addressed to definite deities. Dyaus, Varuna, Indra, Agni, all alike, were invited to the sacrifice. With the exception of the famous and solemn Agvamedha, or "sacrifice of the horse," with the meaning of which we are scarcely concerned here, and apart from the minute formulas of the liturgy, there may be recognised in the fundamental ceremony three equally interesting features, whose combination constitutes a genuine philosophy of a very high order. First comes the commemoration of the discovery of fire; then the metaphorical identification of the birth of fire with the birth of man; lastly, the souvenir of ancestry admitted to divine honours under the name of *pitris*, fathers, manes.

Not that the idea of a life beyond the grave was all at once clearly developed. So far from this being the case, death was looked on as a dismal state; and one of the most fervent prayers addressed to Varuna ran: "Keep us from the earthly house; prolong our life!" But we shall see that the symbolism of this worship, aided by the very love of life itself, and by the belief in the reality of dreams and phantoms, may have been able, gradually, to suggest a belief in the immortality of the soul, while strengthening it by specious arguments.

As regards the commemoration of fire, creator of the domestic hearth, of the family, of society, and the industries, it seems to recall by the very name of *Bhr̥gu*, the legendary person who instituted the sacrifice. The root *bhr̥g* (*bhr̥j*) means *to cook* or *bake*.

For the Aryas, often witnesses of sudden conflagrations in their vast forests, or of fires kindled by lightning, as well as of the beneficent effects of the solar heat, fire is something confined in material things, whence it springs by friction. Hence two pieces of wood, one pierced with a hole, the other sharpened, become the instruments of the sacrifice. The hole is made at the point of contact of two cross sticks. The priest causes the stake to rotate violently in the cavity, which is the matrix, or mother of the *urani*, or sacred fire. The flame thus produced is fed with clarified butter, and with a fermented fluid extracted from the bitter swallow-root, or *sōma* (from *sq̃*, to beget). It then leaps heavenwards, hailed with hymns of thanksgiving, it is *Agni*, the young god, whose growth is instantaneous, and whose flaming mouth bears to the gods the homage of mortals. The close relation between the production of fire and the procreative act is at once felt. But this vague representation of sexual union does not lead the Aryan mind to the gross practices of the Semite worshippers of terrestrial fecundity. By giving the pre-eminence to the fiery over the humid principle it rises to the dignity of a cosmogonous symbol.

From the Aryan sacrifice flows the theory that the modern Germans would call *monistic*. The life circulating in all beings, the reproductive power ensuring the permanence of species, is entirely centred in the igneous principle. Fire becomes identified

with the active light, with life; it is the consort of maidens, the fertiliser, the intermediate agency between all forms, the preserver of life, the emblem of immortality. But for it the world would not be; hence it is at once all things—the soul of Aditi, the eternal, the infinite, the artificer evoked by the meditations of the sages. Light, motion, life, such are the three ineffable names of the supreme worker. What more sublime, or nearer to the truth than these terms, when stripped of their mystic sense? Doubtless the confusion of these ideas was the very source of monistic error. It caused life, the special condition of certain organisms, to be extended to all things indifferently, whence came the monads, pantheism, and deism. Yet it still remains the purest expression of anthropomorphism reduced to its own forces, and deprived of the aid of all positive science. And the Aryan genius had discovered it upwards of twenty centuries before our era. Later on, it passed beyond that naturalistic mysticism, and in India, rather than elsewhere, arrived at the conception of the purely abstract and metaphysical being—Brahma.

The fire myths were spread with the Aryas throughout all the regions civilised by them. But everywhere except amongst the Persians, the deep meaning of this symbolism was obscured. There remain nothing but mere fragments of the whole doctrine in the legends of Prometheus, who may be identified with *Pramantha*, by whom the stake of the Arani is turned, of Hephaistos, of Vulcan (*Ulka*, the sacred brand of lightning or of the sacrifice), of Estia, or Vesta. The theory had evidently not been yet fully worked out, when the Indo-European groups lost sight of the cradle of their race.

The Aryas of Bactriana, who conquered Persia, and supplanted the Assyro-Chaldeans between the Indus and the Ægean, lived for a protracted period side by side with the Aryas of India, in the neighbourhood of their primitive home. Their language, next to Sanskrit, has remained most faithful to the common type, and there can be no doubt that they preserved for centuries the deposit of the ancient myths, and of the doctrines summarising them. When the bent of their already thoughtful and philosophic mind,

and their special development led them to create a religion of their own, the so-called Mazdeism, they based it on the symbolism of fire, and on the general myth most closely bearing on it, on the struggle between light and darkness, good and evil, Ormuzd (*Ahuramazda*) and Ahriman (*Anromainyus*), the ever vanquishing and ever vanquished. The conception of Zervân-Akerœyn, time, space, destiny or providence, supreme observer of the struggle, a conception discovered by Chodzko amongst the Slavonic legends, is much more recent than the primitive dualism; for there occurs no trace of it in the Zend-Avesta. And to whatever date is to be referred the fragmentary composition that has reached us of that myth, the language and the ideas of the pretended Zoroaster cannot be posterior to Cyrus and Darius (sixth and fifth century); the inscriptions of the Achemenides, closely akin to the Zend, are evidently inspired by Mazdeism.

In the physical world the struggle between light and darkness, between the good and the evil principles accompanied by the old Aryan gods, now changed to genii and demons; in the moral world the perpetual alternation of good and evil; everywhere the supremacy of light and good over darkness and evil; in religion, the worship of the good principle, of the pure, represented in heaven by the sun and stars, on earth, by the sacred fire; in practice, the love of virtue, of purity obtained by endless purifications; and as a sanction of all, the restoration of man to all his elements—earth, water, air, and fire—this last immortal: such, in a few words, is the complete cycle of Eranian conceptions.

To them, the Persians owed, at least in theory, a moral system, a charity, a love for all useful creatures, especially the dog, which have been surpassed by no other people or doctrine. But contact with inferior races, an enervating climate, the vices of a social order unable to emancipate itself from an unbridled despotism, struggling with a theocracy as powerful as itself, all combined to render this elevated philosophy null and void. It might indeed shoot its broken rays into the sacred writings of the Hebrews, and the mystic systems of the neo-Platonic school, thus exercising its share of influence on our modern civilisations; but it

was powerless to rescue from death the people by whom it had been devised.

We pass by the Teutons and the Slavs, who were too late in reaching an intellectual life, with their curious but distorted fragments of myths, and whose special bent was moreover biased by the intrusion of Christianity, that miscellaneous collection of chimeras. Nor need we speak of the Gauls, whose teachings have been extolled without being understood by modern Celtomaniaes. Indeed it may be asked: Who knows aught about their doctrines?

Long before these later branches, separated at a more remote date from the common stock, the Greeks and the Latins reached the adult age and a precocious maturity in the very period with which we are now occupied. While the Indians, descending from the Indus to the Ganges, are about to be swallowed up in the abyss of a subtle metaphysical system, associated with antiochthonous superstitions, the worship of the lingam, metempsychosis, Nirvana, &c. ; while the Persians are reducing to a certain dualistic simplicity the confused elements of Aryan polytheism, the Hellenes and the Latins, at first a united or neighbouring people, as shown by their speech, the one nearer to the Persians, the other to the Gauls, are trending westwards, bearing with them, such as it was, and modifying, each according to its variously happy genius, the treasure of the ante-Vedic myths and thoughts. These peoples, the most highly endowed for action and for life of any known to antiquity, were equally favoured in their reasoning faculty. Their tongues are the finest effigies that issued from the primeval mint, the clearest, the most pliant, the most susceptible of logical sequence. They had lost somewhat of that transparency which is the charm of the Vedas, but which has tended to beguile the Aryas of India with never-ending reveries. By that very circumstance they furnished the mind with a more submissive instrument and a freedom unknown to other peoples. This is especially true of the Hellenes. The Latins arriving late and in small numbers in a country occupied by heterogeneous races already supplied with intricate religions and superstitions, had to struggle hard for their very existence, and being thus reduced to a life of action did little

for theory. Their wholly liturgical religion never rose to conceptions of a sublime character, and they were acquainted with philosophy only through the Greeks.

This nation was more happily circumstanced. Doubtless they also fought their way through many foreign ethnical elements, receiving *en route* the lessons, the errors, vices, and gods of the Assyro-Chaldeans, Phœnicians, and Egyptians. But their native genius remained unchanged by these outward borrowings, whatever impression they may have produced on their industries, and dawning arts, nay, even on their mythology and religious systems. They had the good fortune to meet in Ionia, in Greece, and Italy, either advanced pioneers of their own race, or else savage or absolutely inferior races, whom they easily brought under subjection. They would thus seem to have all the more freely developed their warlike qualities, their open and ingenious spirit, their harmonious and pliant speech.

From the first, and before arriving at the full consciousness of themselves, they diffused throughout their final home the myths, the gods, and rudiments of philosophy brought from the distant Arya, or else collected on the way. These myths and gods they associated indelibly with their hills and dales, their streams, woodlands, and inland seas. Each tribe adopted by preference the divinity already localised in its domain. Then all these transplanted memories, on which were grafted the events and heroes of real adventures, intermingled with foreign elements, formed an exuberant ideal vegetation, deeply rooted in the "Mother-Earth," an old divinity, endowed with a stronger personality than it ever enjoyed amongst the primitive Aryans, and for which it was assuredly indebted to the influence of the chthonic rites. Like Demeter, the other goddesses put on a bodily form and a personal vitality which they lack in the Vedas. Artemis, Hera, Aphrodite, Leto, ceased to be the simple counterparts of the male gods, as were the Indrant, the Agni, Varunant, &c., of the Hindus. It were needless to dwell upon the æsthetic importance of such an innovation, and on the resources it offered to mythology and poetry. For the rest, all the gods of the Hellenes were closely modelled on

man, and without losing their metaphorical character and the attributes revealing their naturalistic origin, they became real thinking beings, very distinct from the phenomena over which they presided.

To the three Vedic worlds—heaven, earth and ære—was now added ocean, which seems to have been unknown to the primitive Aryans. A large number of the gods of the air took possession of the sea and rivers. At length from the gorges of Tanarus to the heights of Olympus and its cloud-capped palace, the whole pantheon was disposed in an ascending hierarchy, crowned by Zeus, vanquisher of the Titans. Ouranos and Kronos are mere reduplications of Zeus. They fill the same office, and the genius of the Greeks, finding itself in possession of these names, utilised them by converting them into ancestor and father of the ruler of the gods.

It is now proved that Phœnicia, Egypt, and the more or less Semitised peoples of Asia Minor have contributed towards the education of the Greek race, and still more of those shadowy and legendary Pelasgians, whom the Hellenes found already settled in Thrace, in Thessaly, and in the whole of Hellas. To these nations, all alike tributaries of Chaldaea, they were indebted for a few industries and for the rudiments of science and art, and we have just seen that many foreign gods have penetrated into their pantheon. But too much must not be made of discoveries, valuable enough for the study of certain myths and of some primitive monuments. We should remember that the Greeks possessed within themselves special ethnical qualities and the ideas common to the Aryan race. Whatever they may have borrowed they never failed to stamp with the impress of their own intellectual superiority. Their language, while remaining Aryan, ripened into the choicest fruit of the Indo-European tree. And so with their arts and their gods, and, as we shall see, their philosophy also. Like all other non-autochthonous races at the commencement of their history passing through or skirting inferior peoples arrived at their apogee, or rather on the decline, they were far more absorbing than absorbed. The Persians, following close upon their track, also profited by the old Assyro-Chaldaean civilisation, but while

appropriating they adapted it to their religious and social conception. The Greeks rapidly Hellenised the Phrygians and Lydians, if these nations were really of Semitic origin. Nothing can be imagined more thoroughly Greek than the Homeric poems. Yet where were they produced between the tenth and ninth century before our era? On the shores of Asia Minor and neighbouring islands, on the verge of the Lydo-Phrygian lands. All the gods of the "Iliad" and "Odyssey"—more terrestrial in the former, more celestial in the latter—seem, whatever be the origin of some of them, already established in Greece, in Crete, Thrace, Thessaly, Phocis, Boeotia, and the Peloponnesus. The same deities ruled on both sides of the Ægean, and were common alike to the Trojans and their assailants.

In the seriously re-cast state in which they have reached us, as fixed first by Pisistratus and then by Aristarchus, these poems present us with historical and mythical reminiscences of a remote age, mingled with the manners and beliefs of the Ionians, and expressed in the Ionian language of the tenth century. They were composed by one or more rhapsodists very familiar with the basin of the Ægean, by Ionians, or Achæans (the latter apparently of Æolian stock), and Æolians, driven from the Peloponnesus by the Dorian invasion. From Attica, their first refuge, passing over to Asia, they brought to Smyrna, an Athenian colony, the traditions of the Achæans or Danaï. The Achæans would seem to be the precursors of the Hellenes proper, and the immediate successors of the Pelasgians.

The Homeric poems, with which must be included some of the hymns usually published with them, still contained, in Aristotle's opinion, the foundations of the Hellenic religion and ethics, and not of those borrowed from Assyria. As regards the ethics, Aristotle's view is highly hyperbolic, if he means to speak of a code of moral principles based on the common weal. The Homeric world is on the whole a prey to force and stratagem, in which the weaker side is invariably sacrificed. Hesiod, at least a century more recent, and animated by a keener sense of justice, warns the nightingale that he has no refuge against the destroying kite. Domestic life and monogamous marriage are already surrounded by

some protecting influences, and give scope for touching virtues, paternal, maternal, or filial love. But concubinage also is openly paraded, as the most natural and innocent relationship. Murder is expiated by purifications and indemnities, if the relatives of the victims consent. There are neither public nor private morals, at least nothing that we understand by those terms. But the sense and love of justice is not absent; and kings, when not overmastered by their passions, show a desire to be humane and equitable. Suppliants and guests are inviolate. But in all this we have nothing more than the sentiments and practices found amongst most peoples, such as they are known to us in their most primitive state.

In classic times there was formed a school which pretended to discover in Homer a profound philosopher. But the true charm and value of the mythical records collected and embellished by the rhapsodists consist precisely in the absence of philosophy, and the perfect artlessness of the descriptions and allusions. Homer is impersonal, and on that very account, all the better reflects, as in a mirror, the state of the Hellenic mind towards the end of the heroic times.

What then were the prevalent views on the shores of the Ægean in the tenth century? The universe, extremely restricted in height, no less than in breadth, was ruled by the caprice of the gods. But these gods themselves, with Zeus their master, were subject to blind destiny, whose irresistible decrees were known to the king of the gods alone. They might delay their execution, but they could not escape from the necessity of accomplishing them soon or late.

The earth and heaven, at least in the form of chaos, existed before the gods, who had merely subdued or reduced to order the natural forces.

Some allusions in the visit of Juno to Ocean and Tethys would seem to imply, that, long before Thales, water was sometimes regarded as the origin of all things. This doctrine is a reminiscence of Assyria and Phœnicia. Elsewhere it is fire (worship of the Cabiri, unknown to Homer) which is taken as the author of life and forms.

Man, whether shaped by Zeus or by Prometheus, and quickened by the celestial fire, must invoke the gods, who accept or reject his prayers. We have seen that the fulfilment of the laws of destiny may suffer some delay. This latitude is the measure of the power of the gods. Hence their protection is absolutely illusory.

All good and evil things are locked up in two vases or urns, from which Jupiter draws each in its turn.

Apart from the myth of the Titans, mainly cosmogonous, these two urns are almost the only dualistic conception in the moral order.

Vice and virtue have a twofold sanction—during life wealth or misery, the favour or anger of the god of thunder; after death, the Elysian fields with their dreary bliss, or Tartarus with its eternal torments.

Thus the Homeric Greeks believe in immortality, but they have scarcely a distinct notion of what is soul or life. The dead are phantoms; if happy they have drunk the waters of Lethe, and have lost all memory of the past; but if guilty they retain the recollection of their crimes, which alone insures the efficacy of the punishment.

But the life of these shades or manes is but a faint reflection of the terrestrial life. The dead have lost the power of thought and speech, to recover which they require blood, the blood of the victims sacrificed in a place where they come to drink. And the only use they make of this precarious resurrection is to regret in strong terms the true bodily and terrestrial life. ("Odyssey," xi.)

Thus, beyond the gods and the myths, the metaphoric, that is, metaphysical, sense of which is scarcely perceived, Homer proclaims an intermittent but inevitable fatality, an irrational mingling of good and evil, a real life, and an empty, vague, ill-defined immortality.

In his pantheon there is no room for monotheism, and very little for dualism. It is in fact essentially pantheistic—the distribution of authority amongst powers guided by their cosmic attributes and their human passions.

In fact, if the gods of the Hellenes are forces of inorganic or living nature, they are above all, men and women. Even such

purely verbal entities as Discord, Sleep, Hatred, &c., assume a definite form.

The term "anthropomorphism" is usually reserved for this material incarnation of the human faculties in divine persons, and in this sense the Greeks are the most decided anthropomorphists of all peoples, because they have beyond all others a consciousness of human energy and beauty. In their eyes man absolutely excels the nature which at times overwhelms him, but which also serves him.

We shall see that this gift, or this defect, has strikingly contributed to the subtle precision of their metaphysical creations. Every word, every general term, has become for them an entity, almost a being. Thus reason (λογός), mind (νοῦς), the soul (ψυχή), have given rise to a new mythology, which, being based on logic, has remained more persistent, without being either as deep or as pleasant as the metaphorical mythology based on instinct and verbal illusion.

The symbolism and allegory that have occupied such a large place in the Greek religion are not to be confounded with the primitive interpretation of the transparent Aryan metaphors, for they are merely explanations more or less approximate to the original sense, suggested long after that sense was forgotten. This symbolism and allegory, however, must have inspired the Orphean doctrines, unless what has reached us of them is a mere neo-Platonic fabrication, concocted at the beginning of our era. Orpheus, the fabulous Thracian lawgiver, whose name was unknown to Homer and Hesiod, was certainly not a pure invention of Onomacritus, the reviser of the Homeric poems under Pisistratus. The Pythagoreans, Plato, and the Stoics, believed in his reality, and several philosophers wrote works under his name that have since perished. But the name itself, so analogous to that of the Vedic *Rbhus*, inventors of the worship, proves nothing as regards the existence of the man. He would seem rather to personify an epoch and a system of sacerdotal institutions long anterior to the migration of the Greeks into Thrace.

Unlike Homer, Hesiod, the Æolian of Ascre in Boeotia, was

gifted with a systematic turn of mind, though less profound than the fabulous Orpheus. If the Theogony, at least in its main outlines, is to be attributed to him, it reveals a cosmogony already reduced to order and not quite void of sense. In the primeval Chaos, father of Erebus and Night, ancestors of all the gloomy powers of darkness, of the lower regions, and of evil no less than of desire and love, were mingled confusedly both heaven and earth, earth the mother and consort of heaven (Ouranos strewn with stars or eyes), ever stable seat of men and gods. Of heaven and earth are born the Titans, the eldest of whom, Kronos (creator or artifex?) severs the ties connecting heaven and earth with a flaming scythe (*Adamas*), which is Aurora. From the froth of the sea mingled with the blood of the mutilated Ouranos springs Aphrodite—desire, love, fecundity—whence flows terrestrial life. Then Zeus, son of Kronos, completes the bright work by overthrowing his father and the Titans, and confines in the volcanoes under the earth the still badly regulated cosmic energies. Such is the foundation on which Hesiod somewhat incoherently and confusedly reconstructs all the mythic traditions. His moral ideas are more intricate and refined than those of Homer. They are embodied not only in the precepts occurring in his "Works and Days," breathing a genuine love of justice, but especially in his myths of Prometheus and the "Eons" or Ages.

The former, associated with the commemoration of the discovery of fire, he diverts from its liturgical sense, so nobly interpreted by the priests of the Veda, and makes it the starting-point of the everlasting struggle between the gods and men, and of the jealousy by which Zeus seems to be inspired in his dealings with mortals. The essential point is the fact that Prometheus has given fire to mankind. According to Hesiod he has created man, fashioning him with his own hands, and breathing into him a spark of that fire, guarded as a divine treasure by Zeus. Zeus avenges himself by causing Hephaistos, the blacksmith of the gods, to fabricate Pandora, a virgin endowed by all the gods with all the seductive charms of womanhood. To her he entrusts the famous box in which are locked up all the goods and evils which, when the

casket is opened, fly out and are scattered over the world. Hope alone remains at the bottom of the box. Hesiod thus establishes an everlasting antagonism between men and the powers above. Religion becomes the treaty intervening between the two parties, on certain conditions securing for the one the tolerance of the other.

Here is assuredly an ingenious and admirable conception, rich in poetic resources, possessed of a remarkable charm and depth far superior to the Jewish history of Genesis and to the treaty concluded between Abraham and Jehovah. Unfortunately it adapts itself with equal readiness to the theories of redemption, sin, the primeval fall. Heracles, the liberator of Prometheus, the man deified by his sufferings, easily becomes a figure of Christ.

The theory of the *æons*, of which Hesiod reckons five, and which lead man by degrees from a primeval state of bliss to his present wretched condition—a theory far inferior in beauty and philosophic value to the myth of Prometheus and Pandora—has contributed still more to beguile the mind of man, especially by the countenance it has given to the Christian fables.

How could such a conception have arisen? So precarious was life, and so remote from the humblest ideal of comfort and security, that it came in fact to be regarded as a state of decadence, or an expiation. The same explanation, under diverse forms, has suggested itself to all peoples the moment they arrived at the consciousness of themselves.

At that time science had no existence. Some few astronomical data, whose correctness and value have been strangely exaggerated, the rudiments of calculation and some tentative geometrical essays—such, before and long subsequent to the seventh century, were the only conquests of man in the real world surrounding him, and of which he made an integral part. The descriptive sciences—geography, geology, zoology, anatomy, &c.—were no further advanced than the general, such as physics, chemistry, biology; or the moral, such as history, social and political economy, legislation, &c. Deprived of all solid information, man had speculated on the outward world with utterly insufficient and superficial obser-

ventions. Led astray by an equally vague knowledge of himself, of his organism and faculties, he had shaped the world after his own fancy, endowing the objects acting on himself with his own intentions and attributes, surmising the one by the other, and *vice versa*. The discovery of fire, the beneficent influence of the sun, the obvious connection between heat and life, the love of existence, dreams haunted by visions of the dead, the distinction between the body and impalpable thought, had led him towards the anthropomorphic and metaphysical conceptions of a future life and an immortal soul.

It is on these inveterate errors of ages that will henceforth turn the spiritualistic theories of every shade, metaphysics of every order, revolving ever in the same circle, shedding a false light on every dark corner filled with a fanciful mystery.

Such are the errors against which the experimental method will have laboriously to contend; a method badly aided by the senses, deprived of all accurate instruments till these latter days, in which it begins at length clearly to see its final triumph, a beacon long invisible and often eclipsed altogether.

The history of philosophy would be unintelligible without this sketch of the first and persistent illusions of humanity.

CHAPTER II.

ANTIQUITY—FROM THALES TO EPICURUS.

§ 1.—*Preliminary: India and China.*

THE philosophy of Greece, and one might say of the West in general, had its birth in Ionia, on the shores of Asia Minor, towards the end of the seventh century.

In the same epoch Chaldaea, Assyria, Phœnicia, and Egypt had already worked out the ideas compatible with their genius. These were not destined to go farther than the conceptions we have

endeavoured to summarise in the foregoing chapter: vague and tentative sketches of the universe, chimerical and barren digressions on human destiny, the main feature of which is an almost total ignorance of the reality. What has been called their wisdom, doubtless in an antiphrastic sense, was perniciously filtered into Hellenic thought, in which it deposited a fatal germ. Egypt especially, with her cosmogonous triads, her incapsulating of souls, and her metempsychoses, proved a dangerous teacher for Greece. A few rudiments of mathematics and some astronomical notions, for which the Hellenes were indebted to their neighbours, could not compensate for the injury inflicted on their intellectual development by the reveries of the East, a legacy of moribund civilisations utterly incompatible with the Aryan spirit. Unfortunately the legacy was at hand, a mass of deceptive treasures, in which the evil outweighed the good; in which the good was concealed by the evil. Greece, still young, and eager to know and think, had neither the strength nor the means to reject the burden. Knowing neither what nor how to choose, she was fain to accept it as it was.

India, whose ancient history admits only of a chronology of an extremely doubtful character, was already in possession of its principal philosophic systems. Kapila's rationalism changed to mysticism by Patanjali, the atomism of Kanada, Gautama's logic, belong assuredly to an epoch anterior to Buddhism, which implies them and appropriates to itself their methods. And if, rightly or wrongly, the opinion be now rejected, assigning Buddha's death to the year 547 before our era, it cannot in any case be denied that Buddhism was established in Central India at the time of Alexander. As on the other hand it must have required time to develop, it will not be considered rash to refer to the period between the seventh and fifth centuries the philosophic movement of which it was the outcome. The actual existence of Kapila, Kanada, or Gautama can now no longer be verified. The later poets treat them as fabulous beings—Rishis or sages—contemporaries of the Vedic singers. But it is at all events obvious that their doctrines arose side by side with and apart from the orthodox tenets based on the Vedas, and that they form the transition from

the Brahmanism of tradition to heterodox and atheistic Buddhism. They indicate that moral turning-point at which the adult mind hopes, by means of a more rigid observation, and a more self-reliant reason, and with the aid of a language less refractory to ratiocination, again to reconstruct the edifice raised by a precocious imagination in the childhood of mankind.

The mental state revealed by Kapila's "Sankya," by the "Vaisesika" of Kanada, Gautama's "Nyaya," and Patanjali's "Yôga," corresponds in every respect to that whence sprang the systems of Anaximander, of Pythagoras, Xenophon, Anaxagoras, and Democritus, with this difference, that the Indian doctrines imply at once a longer previous experience and less clearness of thought.

The theory of an influence exercised by Greece on ancient India is now no longer upheld. If, for instance, Aristotle is already felt in Gautama and Kapila, it is a rudimentary and inferior Aristotle, such as was compatible with the subtle but somewhat discursive genius of India. The founders of Indian logic remained at a long distance from the "Stagirite," but they preceded him in point of time. A more probable opinion, were it supported by less shadowy traditions, would readily admit an influence of India on Greece; but it is not probable that any Greek ever set foot on Indian soil before Alexander, and if some waves of Hindu thought ever reached the Hellenic mind, they must still have traversed the wide Chaldæan and Semitic mainland separating the Ganges from the *Ægean*. Besides, the metempsychosis adopted by Pythagoras and by Plato, belonged quite as much to Egypt as to India; hence the Greeks must have borrowed it from neighbours who were their direct and immediate teachers.

But whatever may have been the actual relations between ancient India and Greece, inasmuch as their oldest philosophies were produced both at the same time and in an analogous intellectual state, and as the systems born on the banks of the Ganges present, so to say, the outlines of the teachings developed during the course of three or four centuries in Ionia, Attica, and Magna Græcia, or Southern Italy, it will be desirable here briefly to

resume the four great distinctive conceptions of Kapila, Patanjali, Kanada, and Gautama. We shall leave unnoticed the two orthodox systems of the "Mīmāṃsā" and "Vedāntism," whose foundation, law, and starting-point are the sacred texts. Not that even these differ as much as might be supposed from the heterodox systems. They proceed from the same logic, and employ the same reasoning methods; but, making observation and science subordinate to faith and tradition, they turn mainly on religious criticism. It will suffice to remark that the former belongs to a very ancient period, and that the latter proceeds from it, or is rather a modernised edition, adapted to the exigences of the polemics directed against Buddhism.

At the outset an essential distinction must be noted between the doctrines of India and the earliest Greek philosophies. The latter have the appearance of being a free and disinterested effort at acquiring a knowledge of the universe. The foundation of the former is ever a foregone moral conclusion. Their starting-point are certain religious views which they accept, and by which they are terrified. Their aim, never for a moment lost sight of, is to rescue man from the evils inherent in life, evils indefinitely renewed by the transmigration of souls. The Greek philosophers were never to an equal extent influenced by this consideration. With Plato, and even with Pythagoras himself, metempsychosis is but a secondary dogma, a mere accessory. This is easily explained when we remember that it formed no part of the primitive Aryan ideas, and does not even appear in the Vedas. It became readily associated with the belief in a future life, but was superadded as a borrowed element to that doctrine. In India, on the contrary, it is the offspring of the soil, or at least of Brahmanism, which, if it did not receive it from the conquered races, planted it there towards the close of the Vedic age, several centuries before the dawn of independent thought; and so firmly has it taken root that three thousand years of religious and political vicissitudes have been unable to eradicate it.

It is impossible to imagine a more absorbing, a more hopeless conception. For it immortality becomes a series of alternatives.

of ever varying, ever fresh torments, compared with which the Christian hell itself becomes an elysium. The force of habit deadens grief and pain even in this short life; how much more in eternity? An everlasting punishment thus becomes a mere condition of life—a normal state. By dint of roasting the damned would cease to feel the fire. He would adapt himself to it like a salamander, defying the feeble ingenuity of an impotent executioner. But to be born again! To assume ever fresh forms! To be exposed in a constantly renewed frame to constantly renewed agonies! To endure the pangs of the snake after those of the lion, to thirst as the camel after hungering as the bear! The threat of such tortures sours the very pleasures mingled with them. Variety itself becomes monotonous.

The safest road of escape from such tortures is to deny their cause. But this was beyond the ken of the Hindu. How then avoid them? What alternative remains? Abolish by the practice of virtue this strange and tremendous moral sanction! Guilt extinguished, the punishment dies! But virtue is inconceivable without a knowledge of the field in which it must be practised. Observe that this reasoning in its general form is perfectly legitimate, inevitable, and admirable; all the philosophies adopt the same line of argument. It is even our own formula: Know the world, man, and their mutual relations, in order to lay down the laws of individual and social life. Probe the depth of things; no theory, no science, however special, has any other *raison d'être*, either expressed or understood, than utility, practical interest. Let us remark, however, that the Greeks had not at the outset the full consciousness of this law, which regulates and guides all study and research; that the Indians obeyed it from the first, and that it was revealed to them through the necessity of getting rid of metempsychosis. Such an aim, while chimerical for us, was for them real and unanswerable. This point may now be passed over, as common to all the systems we shall have to expound. Equal quantities may be eliminated from both sides of the equation.

Kapila sees salvation, ultimate redemption, in science. The sacred books teach us nothing on the reality of things. Hence

certainly must be sought in sensuous perception, in rational induction, and, secondarily, in evidence, supported by the necessary safeguards against error. Such are the three criteria, that may be reduced to two: experience and logic. Armed with these two weapons, the soul will compel nature to unveil herself completely, like the courtesan that at last displays all her charms to the urgent suitor. The soul will behold her such as she is, with lights and shades, her virtues and vices, her passions partaking at once of good and evil, and forming the centre in which life moves. Behind these three qualities, answering to three conditions of the world and the soul—light or goodness, darkness or vice, passion—a threefold veil of substance—the sage will at last discover the five-and-twenty categories of reality. This is the weak side of the system, the catalogue of these first elements presenting an extraordinary incoherence. What belongs to the universe is confused with what is proper to man; the realities are confounded with the entities, the facts of observation with the results of induction and logic:

(1) Nature, root and *mother of all the rest*; (2) Intelligence, or the great principle; (3) Conscience, the begetter of the *ego*; (4-8) The five subtle particles, or essences of the five elements; (9-19) The eleven organs of the senses and of action, which, with Intelligence and Conscience, make up the thirteen instruments of knowledge; (20-24) The five material elements—ether, air, fire, water, earth—the work of the five essences; lastly (25) The everlasting soul, which has to be withdrawn from the vicissitudes of nature, equally eternal.

Analysed to the utmost this chaos yields nothing but an atheistic dualism, in which the spirit struggles to detach itself from matter, by which it is enveloped and swayed. This view was by no means foreign to Greek philosophy, and we shall meet it again in all the metaphysical systems. But Kapila's special goal seems unattained. In what respect can the perfect knowledge of the twenty-five principles and of the three qualities emancipate the soul from the transmigrations? Kapila's asseveration is confirmed neither by observation nor by logic.

This final defect of the system struck Patanjali and possibly also Kanada. The former, a disciple of Kapila, for the twenty-fifth principle of the master, that is, the individual soul, substitutes a universal soul, that is, God. Henceforth fusion in the Supreme Being, impassionate as the void itself, becomes the end of science, the term of evil and of life, the final deliverance. It is the *Yôga*, or "Union," eloquently celebrated in the *Bagharujitâ*; but it is also the Buddhist *Nirvana* by anticipation—the extinction of the human personality. In the presence of this conclusion, which is that of all the mystic doctrines, all ethics vanish. Of what avail are works? The transitory, the ephemeral, the relative, is indifferent to the absolute. Science is reduced to ecstasy, or, at the best, to a mechanical existence. Whoever has realised the *Yôga* has no need to trouble himself any longer with the rules extracted by the pious *Minansi* from the sacred hymns. The minute and exacting requirements of duty concern those hapless ones only who after life have failed to re-enter the universal soul. Thus the triumph of logic, carried by Patanjali far beyond the illusory term at which Kapila stops, ends in a startling contradiction. The *Yôga*, end of the doctrine, denies science, its principle.

Not that, once granting the necessity of final deliverance, extinction—implied as much in the atheism of Kapila as in Patanjali's mysticism—may not be the radical and only means of getting rid of metempsychosis. But the one sought it in science, where it was not to be found; the other found it at the end of a fatal path—in the intoxication of absorption in God. The moment it ceases to be made the end of existence, we see that it leads thither in spite of itself, and whatever it may do to delay the issue. Death is ever there to see to it. This is what was clearly seen by the materialist Kanada; and this conviction made him the freest thinker in India. For religious bugbears could have no influence over the atomism of this philosopher.

The physics of Kanada are of a most rudimentary character, admitting, like Kapila's, many confusions, and many entities. They endow with existence those categories which were not

invented by Aristotle and Kant, and which are nothing but more or less convenient headings for the classification of human knowledge. But the system is based on the hypothesis, now all but confirmed, of uncreated atoms, which combine, making and dissolving beings and things. This profound conception outweighs many unavoidable imperfections. Kanada's system is called *Vaiśeṣika*, from *viśeṣa*, difference. It is in fact an analysis of substances and qualities. All science is embraced in six *padārthas*, tests or categories :

- (1) The SUBSTANCE, seat of the qualities and actions. Of substances there are nine: earth, water, light, air, ether, *time, space, soul, manas*, or inner sense.
- (2) The QUALITY. Of qualities there are twenty-four, fifteen of which are material and sensuous, *nine* intellectual—intelligence, pleasure, pain, desire, aversion, vice, virtue, or rather virtuality.
- (3) The Action, with five varieties.
- (4) The Common Characters—genus, species, the individual.
- (5) The Difference—doubtless the characters peculiar to each substance, quality, &c.
- (6) The Relation, that is to say, the affinity that aggregates atoms and constitutes bodies.

Everything is formed of the five first substances or material elements, variously grouped. The dissolution of the aggregates and the distribution of the atoms in fresh forms bring about the change of qualities, of actions, differences, relations, and the end of the individuals. Thus metamorphosis supersedes metempsychosis and the search for everlasting bliss. It leaves men entirely to the individual and social life and to the practice of the duties flowing therefrom.

The doctrine of Gautama, as far as it may be gleaned from Barthélemy Saint-Hilaire, lacks the comprehensiveness characteristic of Kapila's and Kanada's conceptions. It does not embrace the universe; but by determining with a certain rigour the rules of discussion (rather than the laws of ratiocination), it supplies

the instrument of accuracy, enabling us to arrive at logical probability, if not at experimental certainty, and in any case, according to Gautama, at "everlasting bliss."

The *Nyaya*, or Reasoning Method, as this system is called, according to Barthélemy Saint-Hilaire, is nothing but a treatise on *dialectics*, a useful guide for discussion, but insufficient for demonstration. But the learned translator of Aristotle and of Gautama has possibly been somewhat biased by his veneration for the "Organon" and the "Analytics." He was afraid of giving countenance to the otherwise far from probable opinion that Aristotle was a pupil of the Hindu logician. But the *Nyaya* is all the same a genuine system of logic, and Gautama shares in the error common to so many men of genius, and to so many simple minds, which attributes a universal efficacy to the processes of logic.

"The position of ratiocination," and the vindication of "the assertion established by reasoning," conduct infallibly to certainty. Such is Gautama's conviction. In formulating and defending the proposition the intellect passes through sixteen categories, makes use of sixteen means of control, or "topics," in the following order: the proof, the object of the proof, the doubt, the motive, the example, the assertion, the members of the assertion regularly disposed, the supplementary reasoning, the conclusion. Then the objection, the controversy, the quibble, the five sophisms, the deception, the futile answer, and lastly, the reduction to silence (or *ad absurdum*).

Without dwelling on the defective arrangement of these topics, the number of which might be easily reduced, we will confine ourselves to the first, the proof, and to the sixth and ninth, which contain both the theory of certainty and the theory of the reasoning method calculated to establish it.

In the first place: "What is the proof, the authority for our knowledge? What are our means of knowledge? Gautama admits four: Perception; inference, or induction; comparison, or analogy; testimony." Kapila, if indeed anterior to Gautama, was already acquainted with these criteria of certainty, and in truth

man possesses no others. Gautama, however, arranges them badly. Perception, that is to say, the experience of the senses, should have testimony as its immediate and secondary corollary. Then would come comparison, judgment, and induction terminating the series.

In any case these means of control, applied to the various categories of knowledge enumerated, for instance, by Kanada, undoubtedly constitute the principle and starting-point of logic. They reappear in the discourse of Descartes on "Method." They allow of a proposition being formulated in such a way as to admit of proof by reference to its form.

Here is an example of an assertion proved by the method of the *Nyaya*: "(1) Proposition: This mountain is burning; (2) Cause or reason: For it smokes; (3) Elucidation: What smokes burns; (4) Application: But the mountain is smoking; (5) Conclusion: Therefore it burns, for it smokes." This reasoning is founded on the ordinary association of two attested facts, one involving the other. It is precisely similar to this: (1) Peter is mortal; (2) Peter is a man; (3) All men are mortal; (4) But Peter is subject to this law; (5) Therefore Peter is mortal, for he is a man.

Nevertheless, Barthélemy Saint-Hilaire, from whom we take the substance of the foregoing, refuses to Gautama the honour of having invented in India the syllogism which Aristotle devised in Greece. We do not attach the same value to the syllogism that Barthélemy Saint-Hilaire does, recognising nothing in it beyond a useful analysis of the elements—whether true or false—of an assertion. Still we find all its characters in the above quoted example. Does it not contain the *question*, the principal, or *major* proposition, the *minor*, and the conclusion or *consequence*?

In any case the syllogism, whether expressed or implied, existed long before Aristotle, long before Gautama. The latter employed it without rigidly defining it; the former, an infinitely superior genius, has determined, as we shall see, all its modes and all its various kinds. Hence the *Nyaya* in no way detracts from the glory of the "Organon."

Whilst adult India was building up the systems on which its thought still lives, China, still more developed, and already provided

with an Atomism (the "Y-King") and a rationalistic Atheism (the "Shu-King"), though greatly inferior to Kanada's *Vaisesika*, and Kapila's *Sankhya*, produced simultaneously the pantheistic mysticism of Lao-Tseu, which seems an echo of Patañjali, and the positive and practical ethics of Confucius, analogous to the *Nyaya* and the *Mimamsā*. She has never departed from the doctrines of these two sages whom she has deified. It has been already remarked that China had no share in the education of the Western spirit. Let us here add that there is nothing in its philosophies that is not found in our ancient and modern systems. But they lack two of the most empty chiméras that have beguiled our sages—the conception of a personal deity and the immortality of the human individual. Hence Confucius and his most famous disciple, Mengtseu, (Mencius, fourth century before the Christian era), passed over the questions of origin, to which the science of their time could give no answer, constituting in their place a pure and healthy moral system, based on expérience and reason. Such also have been, in many respects, the mind and the work of Voltaire; who, while accepting a vague deism, concentrated all his energies on history, and on the moral lessons to be derived from it. Without pushing this analogy too far, China may be said, *exceptis excipiendis*, to have had its eighteenth century six hundred years before our era; but its nineteenth is yet to come.

We return to adolescent Greece.

§ 2.—*From Thales to Democritus—The Gnostic Poets—The Ionian Physicists—The Metaphysicians of Magna Græcia—Atomism—The Sophists.*

Until the seventh century the cosmogonic conception contained in the myth of the Titans, and in the belief in gods reducing chaos to order, or presiding over the various classes of phenomena, takes the places of all objective general science. Such as it was it still contained some approximate notion of the universe. But of man himself, and of his faculties, Greece knew still less. Physiology

and psychology were sealed books, and the first efforts of her thought were directed towards the elements furnished by experience on the relations between the members of the family and the state, on the political and social manners and institutions. Her first sages were lawgivers, such as Lycurgus, Draco, Solon, Epimenides the Cretan, Bias, Pittacus, Periander—statesmen and moralists. From this period date the aphorisms attributed to the seven sages, the apologues of Esop, and the moral views preserved in the fragments of the gnomic poets. Speculation was not yet born, and all philosophy was of a practical character. Solon personifies the whole of this epoch, during which men led active rather than contemplative lives, observing only with a view to the immediate utilisation of the notions thus acquired. Solon is above all a traveller, archon, lawgiver, and gnomic poet.

Of Greece we know little beyond the brilliant effervescence of the two or three privileged centuries between Themistocles and Demosthenes. History tells us next to nothing regarding the seven or eight hundred years occupied by the Hellenic tribes and states of Europe in establishing themselves. Nevertheless, it tells us enough to account for the slow growth of industrial, æsthetic, and literary development. In the midst of intestine strife, of petty and savage warfare between jealous and ambitious townships, there was no room for leisure, disinterested study, and contemplation.

Less stormy and more brilliant were the early annals of Ionia and of the Asiatic islands of the Ægean. Ionia especially, hemmed in between the sea and the extreme verge of Asia Minor, was indebted to this double position for its precocious civilisation. The colonies founded in every direction by her teeming population, sent back to the mother-cities of Miletus, Ephesus, Lampsacus, Colophon, Clazomene, together with the rich merchandise of the Mediterranean, vast stores of information still beyond the reach of European Greece. The contact with the Phœnicians, whom she everywhere supplanted, and with the Aryan-Semite kingdoms of Lydia and Phrygia, instructed her in the arts and sciences of those ancient peoples. All races, all religions, all the myths and positive

data met together on her shores. Hence philosophy might well take its rise in this favoured region.

The father of the Ionian school, common source of all the others, was Thales, of Phœnician origin, one of the seven sages, guide and lawgiver of Miletus, who was born about the year 640 before our era. He is supposed to have visited Egypt, Crete, and parts of Asia, where he doubtless acquired the astronomical notions that enabled him to predict the eclipse of 609 or 585. How he was first led to study things in their very substance; how he had the boldness to regard the gods as simple aspects of a motive power, likened by him to life or the universal soul, it is now very difficult to understand, nothing being known of him except by tradition. He is not thought to have ever committed anything to writing, and Aristotle, Diogenes-Laertius, Cicero, Stobæus, and Plutarch, have transmitted to posterity only a few fragments of his thoughts.

It is probable that the sight of the sea, and the worship paid by the Assyro-Chaldeans to the humid principle, confirming some superficial observations of his own, originally suggested the fundamental point of his doctrine, that water is the primary element, the substance of all forms. Air, earth, fire, are merely expansions or condensations of water, which is the origin of life, because the animal germ is humid, because humidity is necessary for the nourishment and fertility of plants. Water is the source of brightness, because the solar heat is nourished and formed by the terrestrial vapours. Lastly, water readily assumes all forms; it is the *protoplasm* matter itself.

This view, superficial and incomplete though it be, has none the less been one of the great efforts of human intellect. Antiquity proclaims Thales to be the founder of physics, of geometry, and astronomy. But he was more than this. He was the founder, not merely of one or three sciences, but of *science*, that is, of objective experience. With him philosophy entered on its true path, whence it has been diverted by so many thinkers more subtle than he was.

We do not mean to say that the physical system of Thales was a complete whole, possessed of perfect unity. According to Diogenes-Laertius he admitted *immortality*, but in what sense and

to what extent can no longer be determined. But nothing is more probable in itself; for how could he have rashly dared, even at his own peril, to dissipate an illusion consecrated for thousands of years by dreams, by the symbolism of fire, by the mysteries?

He also taught the existence of a motive power, or soul diffused throughout matter, under the form of gods or *daimones*. "The world," he said, "is animated by and full of demons." But what was the nature of the soul which he attributed to the loadstone and to yellow amber? He no more knew himself than did the greater part of his successors. Did he perceive the intimate union between substance and force? Probably enough; but did he regard the latter as an attribute, a property, a quality of the former, as it really is? Or did he transform it to a metaphysical essence? Or did he not rather fail altogether to perceive these distinctions?

Anaximander of Miletus, in all probability the immediate disciple of Thales, but a deeper genius and the greatest of the Ionians, proclaimed the essential union of motion and substance. He altogether enlarged and gave precision to his master's teaching, tracing with a marvellous intuition the outlines and the broad features of natural philosophy. He is the true precursor of Democritus.

The principle of all things he recognises neither in water nor in the air, any more than in earth and fire. For him the fundamental substance is undetermined, and he designates it by the neutral term *ἄπειρον*, the unlimited, the shapeless; not chaos, as Aristotle interprets it, but a concourse of diverse elements, endowed with essential and eternal motion. The nature of these elements, of this *ἄπειρον*, is changeless, continuing ever present in all their combinations. By the separation of unlike and the aggregation of like essences, by the countless and successive juxtapositions, affinities, and transformations, things, beings, man at last, have all slowly reached the state in which we now see them. But however complex their organism, they contain nothing beyond the material and motive element of the *ἄπειρον*.

Like Thales, Anaximander was a physician, an astronomer, and

a mathematician. To him we are apparently indebted for the sundial and the construction of the sphere. He taught that the moon shines not with its own but with a borrowed light; that the earth is a globe balanced in the centre of the universe; that the sun is a fiery orb, large as the earth itself—bold hypotheses for those times!

His pupil Anaximenes, also of Miletus (557 B.C.), does not seem to have understood the famous *ἀπειρον*. He transferred its attributes and properties to the air, which for him is the universal substance, infinite, eternal, endowed with everlasting and necessary motion. Thales derived all things from water, by expansion and condensation, and for this the system of Anaximenes merely substitutes air, as that of Heraclitus (544) does fire; as other philosophers of the sixth century do water and fire, or the four elements. The astronomy of Anaximenes is also inferior to that of Anaximander. He gave currency to the well-known and persistent error of the solidity of the concave vault of the heavens, revolving with the stars round the earth, upheld by the air. After him his disciples Diogenes of Apollonia, and Anaxagoras, together with Archelaus, successor of the latter, inclined now to Anaximander, now to Thales. We shall presently return to the theories peculiar to them, but it was necessary here to mention them, because they belong to the Ionian group, properly so called, that is, to the school founded by Thales. Before them there had been produced other systems, akin or opposed to them, but more or less influencing their doctrines.

Contemporaries and rivals of Thales and Anaximander were Pherecydes and Xerophanes.

Pherecydes of Syros (one of the Cyclades) lagged far behind the clearness and, especially the freedom of thought conspicuous in the two Milesians. His system, borrowed partly from Phœnician writings, according to the commentators who have preserved a few fragments of his obscure work "On the Nature of the Gods," diverges from that of Thales in its metaphysical bias, and in a mixture of mythology, half symbolical, half positive. The universe is, for Pherecydes, the informal liquid matter, operated upon in

time by a regulating cause, which he also calls air or Zeus. This beneficent ordinating cause, source and type of all perfections, produced, first of all, the earth, centre of the universe, and then round about it a multitude of gods, begot of Love. Amongst them was Ophioneus, the great serpent, father and chief of an army of Ophionites. The struggle that takes place between these Titans and Kronos ends by the overthrow of the former, who are hurled into *Ogenos* (*Okeanos*?), the vanquishers remaining masters of heaven. This is the theogony, and even the cosmogony, of Hesiod over again, under new names.

We are told by Cicero that Pherecydes was the first to teach the immortality of the soul, though Thales also is supposed to have believed in this doctrine. Cicero's statement refers probably to some more special dogma peculiar to the philosopher of Syros. In fact, that metempsychosis is meant, may be deduced from the circumstance that Pythagoras, descended of Lemnian Tursenians, or Pelasgians, who had taken refuge in Samos, was the disciple of Pherecydes. And though the arithmetical doctrines of the Italic school are still involved in great obscurity, it is at least certain that they were somehow or other associated with metempsychosis.

Notwithstanding his mysticism, Pherecydes was accused of impiety, and the loathsome disease of which he died was regarded as a visitation of the gods. It is related, to his great honour, that Pythagoras hastened from Italy to assist at the last moments of his afflicted master, and to render him the supreme honours after death.

Thales, Anaximander, Anaximenes, especially the second, are the founders of materialism. Although Pherecydes cannot be separated from the group of Ionian physicists, his ordinating and beneficent cause, the air, being also a material element, still it is difficult not to recognise in him the originator of that dualism, which has taken the name of *spiritualism*, in which substance, now eternal, now created, but still real, is swayed by a spiritual, independent, and superior principle. We would observe again and again, that this pretended principle is nothing but the active force of Thales and the motion of Anaximander, an attribute inherent

in the material elements, detached from them by abstraction, personified and deified by metaphysical anthropomorphism to the likeness of human intelligence.

The first to push this abstraction to its last consequences was Xenophanes of Colophon (between the seventh and sixth centuries), inventor of the nihilism known as *idealism*, which still lingers in so many English, French, and German brains. According to tradition (Aristotle, Theophrastes, Apollodorus, Sotion, and others), Xenophanes was born at Colophon in Ionia, in 620 B.C., some twenty years after Thales. In his eightieth year he would seem to have settled in Elea, Magna Græcia (540), where he became the master of Parmenides, returning thence to die in indigence and sorrow at Colophon, almost a centenarian. Altogether an original and affecting figure was that of this hale old man, in his ninety-second year, still composing songs, which he did not commit to writing, but only recited to earn wherewith to bury his children, all of whom went before him to the grave. The scattered fragments and summaries contained in the works of the old philosophers and commentators bear witness to the importance of his doctrine, to the vigour of his intellect, and the exuberance of his genius; but they do not enable us to follow the development of his thought. Contemporary of Thales, of Anaximander, Pherecydes, Anaximenes, Pythagoras, and even of Heraclitus, during the course of such a long life he must have passed through many intellectual phases, which are now surmised rather than actually verified.

He must doubtless have started with the Ionian physics, from which, however, he derived nothing but a vague and mainly erroneous conception of the universe. He was not naturally inclined to observation, and all his cosmic hypotheses have been condemned by experience. If he promulgated the opinion that the whole earth was at one time covered with water, this correct view can only be regarded as a chance shot. He looked on the earth as a truncated and inverted cone, whose base is lost in infinity, whose summit, on which we stand, rests on the air or ether. The stars, including the sun, whose warmth causes life to spring from the humid earth, are for him terrestrial vapours, which are extinguished

and rekindled like coals. To him the universe seemed shifting and changing, the sport of chance, the scene of delusive appearances; while the misfortunes that assailed without overwhelming him confirmed him in this contemptuous judgment.

And when he turned towards the teachings of religion, he found in the gods still less stability and reality than in nature. He it was who first asserted that "Homer and Hesiod attributed to the gods everything regarded by mortals as dishonourable and infamous—robbery, treason, adultery." "It is man," he further adds, "that appears to have produced the gods, endowing them with his dress, his voice, and figure. . . . The Ethiopian represents them as black and flat-nosed, the Thracian with blue eyes and red hair. . . . If oxen and lions had hands they also would paint images and gods horses would give them an equine, oxen a bovine body."

It was probably at this point that, fresh from the study of physics and mythology, he exclaimed: "No man has known, no man ever will know aught of certain concerning the gods and the universe (*περὶ πάντων*); and those who speak best about them know nothing more than others. All these things are matter of opinion." Pyrrho himself went no farther than this.

But, ever eager for certainty, Xenophanes still dreamed, conceived, and, by means of logical arguments and vicious circles, still dear to metaphysicians, demonstrated after his fashion "a god superior to the gods and men, resembling men neither in their body nor their intellect;" one, because, *if the Divine nature exists*, it must be the best possible, the most potent, the absolute; eternal, because whatever is born dies; unchanging, because eternity excludes all change; but still acting, though by the sole force of his thought; immaterial, since matter changes incessantly; therefore independent and distinct from the world he governs. In order to represent the perfect unity and identity of God, he gave him metaphorically the form of a sphere. In all this, despising as he did mere physical inductions, he failed to perceive that his theory rests on an hypothesis incapable of verification—"if the divine nature exists." With all his opposition to anthropomorphism,

he yielded to an illusion of the same order, endowing his god with thought or intelligence, and human attributes. Rationalistic monotheism, the discovery of which is often referred to Anaxagoras, Socrates, or Plato, is really the work of Xenophanes, and since his time it has undergone no change.

It thus appears that the doctrine of Xenophanes differs in its greater precision only from the dualism of Pherecydes. It leaves to matter or the universe a lower existence; its god is in the end merely the Supreme Being. He will presently be transformed by Parmenides into the sole being; for this philosopher suppresses matter, so that thought, separated from its condition, which is life, and from its seat, which is the human brain, will of itself alone fill the infinity of space and duration with its immaterial, imponderable essence, a perfectly legitimate, in fact inevitable consequence, of the principle laid down by Xenophanes.

For is it not settled that God is immaterial, that He is thought, that thought is the Supreme Being? Does it not follow that the god-thought, the Being *par excellence*, being unique and eternal, limitless at the risk of change and death, therefore unalterable and infinite, leaves no room for anything exterior or distinct from his essence? Parmenides, the profound thinker, and his ingenious disciple, Zeno of Elia, the opponent of Democritus, and their disciples Xenias and Melissus, in proclaiming that outside of existence there is naught but the non-existent, regarding which nothing can be asserted or denied; that existence alone is true and certain; that it is one, since any other concept would partake both of existence and non-existence, which is impossible; that it is all that there is; that it is eternal and changeless; that it has neither past nor future; neither parts, limits, division, nor succession; lastly, that whatever has beginning and change has no real existence at all: these inventors of the Being self-subsisting have uttered the last dictum of abstract reason, apart from all experience. Here we have the *Unum* or *One*, the idealism of the school of Elea, which no spiritualism can reject without the charge of a *petitio principii*. The logical pantheism of this school may be said to be the *reductio ad absurdum* of the idea of God.

This nihilist metaphysical system found its counterpart in a school of physics which, though doubtless little developed, was still essentially Ionic—an unreserved materialism. In this there was after all no inconsistency. The belief in the reality of sensuous appearances is left to the vulgar; why then, while compelled to live in these inferior regions, should not the philosopher appeal to the senses, which lead him to the same conclusion? The materiality of an illusory world does but enhance the high ideality of the rational being. Hence it may be safely admitted that in men thought grows out of the organism, that men are born of the earth warmed by the solar heat, that the earth is round, and placed by its own weight in the centre of the universe, that sun, moon, and stars are condensed fire, emanating from a belt of flames—the Milky Way. Let it be supposed, if need be, that this universe—heaven, earth, seas, lower regions—in which reigns inexorable fatality, is the result of a combination between two elements, distinct but not separate—light, dispensator of heat and beauty, and night, or gross heavy matter, mother of cold and the formless. What can it matter, since all these things must one day perish? Nay, more; *all these things have no existence at all.*

Observe here that the unity of the being in itself, no less than the material origin of human thought, necessarily does away with immortality and a future life. If, on the one hand, the human soul cannot survive the organism whence it springs, on the other, the absolute, admitting neither parts nor limits, can concede no distinct existence to the human individual. Hence it is that the sole Being, the self-existing Being, is equivalent to non-being.

The Ionian and Eleatic schools growing, the one out of experience, the other out of abstract reason—and with Anaximander and Parmenides, in contrary conceptions, both perfectly clear and sharply defined. Between the two comes the Italic school of Crotona, to the confused doctrines of Pherecydes superadding an arithmetical symbolism, or perhaps a realism, that looks like the dream of a delirious mathematician.

Number, quantity, is a relation rapidly established by sensation

between the objects it successively distinguishes in time and space. It is the simplest and the most abstract of the properties of sensuous reality. It will be seen, in the second part of this work, that the idea of number is not foreign to any species of animal, since they recognise different objects and distinguish their impressions; but that man alone, by denoting with a word each of these summary abstractions has been able to establish between them, as between real beings, fresh relations, concatenations of addition, subtraction, multiplication, division, proportion, necessarily referable to the reality whence they proceed. In point of fact, number is one of the elements of sensuous reality, just as much as are extent, form, sound, colour, weight. Indeed, it is even more so, for it is the measure of them all, with the single exception of the ultimate substance of the chemical atom. If, for instance, it succeeded in reducing to a single body, variously subtracted, multiplied, &c., the matter of the universe, say to the hydrogen atom, it would still fail to reduce hydrogen without annihilating it. Hence, however far number may follow the modifications of substance, it will never reach the ultimate residuum, in spite of all that Pythagoras or Parmenides may say to the contrary. In the objective sciences there is but one means to verify existing facts, and especially to determine the conditions under which they are produced.

The speculations on number, and on the symbols representing it, lead to the laws according to which we may measure space, the distances escaping the direct observation of the senses, and thus announce with certainty the inevitable or probable recurrence of future phenomena. Thus, by calculation, astronomy has succeeded in estimating the mass and the volume of the sun and the Earth, the distances, directions, and velocities of the stars, and the periodicity of their course. Thus physics have ascertained the number of undulations determining light, heat, electricity, sound. Thus chemistry has established the proportions in which the atoms of the various simple elements are combined, in order to constitute bodies and organisms. In the same way physiology will some day tell us the number of cellular movements entering into the compo-

sition of thought. Has it not quite recently calculated the velocity of the sensations and the time intervening between them and volition?

It is thus evident, that philosophy has much to expect from the science of number. But while accepting the results, she will carefully avoid the mistake of endowing numbers, that is, relations, with a metaphysical existence, a sort of willing and regulating personality. She will recognise in them nothing but the expression of certain facts, which are of such and such a character and not otherwise, in themselves neither good nor evil, indifferent and impassive.

These considerations will enable us to appreciate the system attributed to Pythagoras, and which, while starting from a correct idea, a remarkable intuition, ended in the most puerile and frivolous metaphysical illusion. If the Pythagorean table is the work of this philosopher, it is a great, in fact, apart from some ingenious hypotheses, the only service he has conferred on mankind. All the rest is nothing but chimera and logomachy. To the Italic school we are indebted for "some exact observations, some first essays in mathematical physics—essays successful enough as regards the theory of musical sounds." But the astronomical hypotheses determined exclusively by idle numerical formulas, are alike deficient in value and in positive data. Nevertheless they were still in advance of the doctrines that prevailed till the time of Aristarchus of Samos, and even of Copernicus. To the sphericity of the earth, already surmised by Anaximander, they added a revolution, if not annual at least diurnal, "round a fire situated in the centre of the universe, and always invisible for our hemisphere which is turned towards the exterior side of its orbit." The sun, the moon, and the five planets revolve, according to some, around the earth; according to others, around the central fire, enveloping at once the orbit of the earth, and that of the central fire itself. This is, properly speaking, the whole system of Tycho-Brahé. But it cannot be too often repeated, that while proclaiming these views, so near the truth, and while conjecturing the existence of an imaginary invisible planet to meet the exigences of their arbitrary periods

the Pythagoreans relied upon no actual experience of any sort, or of however imperfect a character. Nor could it be otherwise at a time when, though the mathematical instrument was roughly devised, neither astronomy, physics, chemistry, nor any other of the sciences employing it was so much as suspected.

"The Pythagoreans," writes Th.-H. Martin, "sought in bodies an immanent but superior principle, at once one and many; number, identical on the one hand with the laws of the universe, on the other, with the intelligent forces. Hence they thought that science might be constructed *à priori* by the interpretation of the properties of number." The unity was God, while diverse consecrated ciphers, real verbal fetiches, expressed the world, man, the perfect and imperfect, chaos and harmony, vice and virtue. With these triflings, which, though utterly void of sense, none the less succeeded in beguiling Plato himself, they mingled the eccentricities of silence, vegetarianism, not without certain whimsical prohibitions, besides the aberrations of a mystagogy, which received its full development in the Christian era.

None the less did this school reckon amongst its adherents a number of remarkable men, at the head of whom was its founder, Pythagoras of Samos.

Pythagoras wrote nothing, for the so-called "Golden Verses" ascribed to him are not his composition. Still, the testimony of Aristotle, and the fragments of Philolaos, the Pythagorean master of Plato, throw some light, however vague, on his life, character, and teachings. A Tyrrhenian, Tyrian, or Syrian (possibly of Syros, where he received the instructions of Pherecydes), he resided at least for some time in Samos, and withdrew from this island to escape from the tyranny of Polycrates. He was born about the year 587 before our era, and is believed to have travelled in the East, especially in Egypt, and also to have descended with Epimenides, into the subterraneous cave of the Cretan Zeus, and to have conversed at Delphi with a certain priestess named Themistoclea. He seems to have settled at Crotona or Sybaris in Magna Græcia in the time of Tarquin the Proud, between 530 and 520 B.C. Lawgiver for all the Greek colonies established in the south of

Italy, he is said to have governed them by means of his three hundred disciples, who formed around him an aristocratic and religious community. It was rather a *mystery* than a school. Initiations, symbolical and veiled language, five years of preparatory silence, perpetual silence regarding the secret dogmas, all separated them from the vulgar. The authority of the master was absolute: *αἶρος ἔφα*, he has spoken, they said. Their political authority was upheld more by these devices of the hierophant than by their science and virtue. But a popular revolt, in which Pythagoras himself is said to have perished, drove them from Crotona and broke their power. Their moral authority, however, was maintained in Italy by Timæus of Locris, Ocellus of Lucania, to whom are ascribed some fictitious works, Archytas six or seven times commander of the Tarentine forces, and in Greece by Philolaos, Simmias, Cebes, and Lysis, master of Epaminondas.

But what was the real nature of the doctrine of Pythagoras? It was doubtless much more religious, political, social, and moral than metaphysical. An attempt has been made* by M. Paul Janet to restore it to the state it must have been in a short time before the days of Socrates. This writer, penetrating beyond the numeral logogriphs, derives thence a system analogous to dynamism. The universe is a harmony of *virtualities*, of numbers without substance, yet still creators of forms. Man is a number, the horse another; God is unity, or else the decade, or union of the ten essential numbers. Good results from harmony; evil and error from disorder. Naught is good or beautiful, except what is *finished* or definite. The indefinite, or the *unfinished*, the multiple, whatever is without number or ordained harmony, constitutes the unjust, the gross, the non-existent. The soul is a harmony; which is scarcely consistent with the doctrine of metempsychosis or of personal immortality. "Man, the point of contact of reason and the un-reasoning, of light and darkness, is called by nature and by God to struggle incessantly, and without ever relinquishing his station, against the principle of evil."

All these gratuitous or frivolous statements may be equally asserted of all deistic or metaphysical systems, and the famous

formulas—"The principle of numbers, is number, or the essence of number: Numbers are the principles of all things," constitute nothing but an empty and barren phraseology.

Nevertheless, how far this school might have furthered positive science, had it sought number in things, instead of subjecting them to preconceived numerical combinations, is sufficiently evident from the following passage of Philolaos: "Number resides in all known things. Without it we can neither explain the things themselves nor their relations. . . . In all human words and actions, in all the arts, and especially in music . . . the omnipotence of number is revealed." This is precisely the theory that has been above sketched.

While the eclectic philosophers were immersed in an absolute idealism beyond the limits of reality, and while the Pythagoreans were plunged in a pseudo-mathematical mysticism, Heraclitus of Ephesus, Empedocles of Agrigentum, Anaxagoras of Clazomenæ, and Democritus of Abdera, the greatest genius that arose in Greece between the days of Anaximander and Aristotle, continued, each according to his natural bent and the state of contemporary knowledge, to develop the Ionian principle, the philosophy of nature. They constitute the direct lineage of the pioneers of science.

Heraclitus flourished towards the close of the sixth century, and must have been born about the year 544. First magistrate of Ephesus, he resigned the office in favour of his brother, in order to devote himself entirely to philosophy. The obscurity of the work *περί φύσεως* ("On Nature"), in which were resumed his ideas on the universe, politics, and theology (or theodicy?), and his melancholy conclusion—"All flows in a perpetual motion, all passes like a river," earned for him the title of *σκατεινός* the Dark; and Lucretius describes him as "a mind that owed its brilliancy to its obscurity."

The physical system of Heraclitus is far from showing any advance on those of Thales or Anaximander. He fancies the sun and stars are no larger than their apparent size, and regards them as evaporations, which become concentrated and inflamed in certain cavities of the celestial vault. Eclipses are produced when these recipients turn their dark convex side towards the earth, and

night and day, summer, winter, winds, and rains, are caused by the varying intensity of the igneous evaporations. However, he offers a rational explanation of the lunar phases, which he attributes to a movement of rotation.

For him the primeval substance is fire, the generating and vivifying, as well as the destroying element. From transformation to transformation, the universe is destined to be at last resolved in fire. Fire is unity, and unity is perfection; Heraclitus on this point showing a certain agreement with Pythagoras and Parmenides. He aims at unity, that is, at the destruction of the world, whence his traditional sadness. Two opposing principles contend in space; war or discord, producing transitory generation and variety; and peace or concord, leading the universe to unity by the final conflagration.

In this universal flux where is certainty? For such a superficial physicist sensation is deceptive, and *reason* alone the criterion of truth. By this he understands not the real reason originating in the evidence of the senses, but ideal reason diffused throughout the universe, as is clearly shown by the following passage quoted by Sextus Empiricus: "We must rely upon *general reason*. Whenever we place ourselves in communion with it we are on the side of truth; on the contrary, we are in error whenever we yield to our individual sense." Such "commonplaces," according to their various interpretations, might form part of all systems. But when we remember that Cratylus, disciple of Heraclitus, is mentioned amongst the masters of Plato, an index will be here recognised of a spiritualistic and metaphysical tendency. The absolute, which Heraclitus failed to discover anywhere in nature, he seemed disposed to seek for in reason.

With Heraclitus may be associated Hippocrates of Cos, the great physician of the fifth century. In fact for Hippocrates fire was the very substance itself, no less than the constructor and organiser of bodies. Life, or the soul, diffused everywhere, was a subtle fire. The modern "vitalists" and "animists" both equally appeal to the name of the Father of Medicine; but they have very little in common with him, for the vital principle of Hippocrates,

a disciple of the Ionians, was nothing but an igneous, or material element.

Empedocles, of Agrigentum, born about 500 B.C., was for Sicily what Pythagoras had been half a century previously for Magna Græcia—a lawyer, statesman, sage, and hierophant. He proclaims himself a god, dispels the plague, resuscitates the dead with quite as much skill as the ancient and modern prophets. So convinced is he of his power and genius that it becomes difficult to separate the element of charlatanism from that of infatuation in his character. Tradition, besides a superhuman pride, credits him with a strange fascination, such as that exercised over their followers by Jesus of Nazareth and Mahomed. His descent into Etna, his sublime death, revealed by the sandal found on the edge of the crater, though mere fables, are quite in character with the memory of this extraordinary person. His life was in other respects glorious enough. After having delivered Agrigentum from tyranny he governed it for many years, like Pericles in Athens, in conformity with the democratic principles, based on the mutual affection of the citizens. When he felt that his influence was on the wane, he went to teach philosophy in Athens, vainly attempted to return to his country, and is supposed to have died in the Peloponnesus. There can be no doubt as to his science, his virtues, and poetical genius. Plato, Aristotle, and all the philosophers are full of his name; while Lucretius, four centuries after his death, is as enthusiastic in his praise as were his contemporaries :

Hic est vesta Charybdis et his Ætnæ minantur
Murmura flammarum rursum se colligero ires,
Faucibus eruptos iterum vis ut vomat ignis
Ad cœlumque ferat flammæ fulgura rursum,
Quæ cum magna modis multis miranda videtur
Gentibus humanis regio visendaque fertur,
Rebus opima bonis, multa munita virum vi,
Nil tamen hoc habuisse viri præclarioris in se
Nec sanctum magis et mirum earumque videtur.
Carmina quin etiam divini pectoris ejus
Vociferantur et exponunt præclara reperta,
Ut vir humana videatur stirpe creatus.

"De Rep. Nat." l. 722-733.

This enthusiasm of the Roman poet is sufficient evidence that Empedocles has as good a right as Heraclitus, Democritus, and even Anaxagoras to be regarded as the precursor of Epicurus; and this judgment is confirmed by the fragments of his poem on nature, by which the Roman materialist was often inspired. His physical system is altogether Ionian, being mainly made up of the asseverations and hypotheses which we have already seen ascribed to Thales, Anaximander, and Heraclitus. He no doubt admits four elements instead of one, combining them in twos—air with fire, water with earth—thence deriving all existing things. But this is a very secondary difference. For him the soul is an aggregate of subtle atoms, diffused throughout the blood, and concentrated round the heart. He recognises nothing immaterial; and the gods and genii themselves—accepted by his symbolic spirit—although immortal, do not escape the common law. He may call the air Hera, the earth Pluto, the water Nestis, friendship Cypris, discord Ares; he may give the name of Zeus to the fire, and that of Sphaïros to a primordial *migma* (mixture); answering at once to the unity of Parmenides and Pythagoras, and to the infinite of Anaximander; he may proclaim, in the regulation of things, the necessity of a reason—of the word, or *λογος*, which was destined to be the subject of so much abuse. But it is evident that he concedes to these gods and virtualities no real personality. The alternating triumph of Friendship and Discord—perhaps suggested by Heraclitus—and the combinations resulting from their struggles, represent nothing but the fatal play of the substantial elements. His good and evil genii, contending for the government of mortals, represent the influences of the physical and moral elements, and of the individual temperaments. If Empedocles at any time recognised a god, this god was Necessity, or Destiny; and as this word expresses nothing but the haphazard succession of forms and events, it follows that the mystic and “divine” Empedocles is essentially an atheist. At the same time he would never have vowed this; and he must have, at intervals, half believed in the entities coloured by his imagination. In order properly to appreciate his complex and highly artistic system, account must be taken

of his pretensions to inspiration, of the metaphysical bias of his mind, the superstitious atmosphere in which he wrapped himself, the proximity of the Pythagorean philosophers, and the teaching of Parmenides.

Without prejudice to his physical system he may have taught the fall of the evil genii, the degeneracy of the human race, and original sin—future Christian dogmas—side by side with metempsychosis—the general belief of antiquity. In fact, everything proceeds from the *Sphairos*—the infinite unity—and returns thither. How, then, are all things given up to dissension—to the fatal vicissitudes of good and evil? Because Friendship and Discord—the good and evil fatality—contend for universal sway. The evil principle has more than once prevailed—whence the fall of gods or of mortals. On the other hand, life, under diverse forms, subjected to the diverse combinations of the same four fundamental elements, is everywhere like the soul, like nature, as much in vegetation as in animals and men. He himself—in imitation of Pythagoras—remembers to have been in turn male and female, tree, bird, fish, before occupying the body of a poet and a god. Hence Empedocles forbids the shedding of blood, for in the body of an animal may dwell a relation or a friend;* forbids animal food; and, failing to exclude all vegetables from human diet, he at least puts his veto on beans and laurel. The lower forms of life and of the soul are due to the fall from a better state; the higher to a return to the good principle. It thus appears that transformation is inevitable, and that in the moral order it assumes the aspect of punishment and rewards. Otherwise neither is eternal, and, after the lapse of thousands of years, a momentary triumph of Friendship puts an end to all further trials. It depends on man himself to hasten this triumph, and this deliverance, by following the precepts of virtue. Thus it is that from these vicious circles, associated with

* "The father seizes the son, who had but changed his form, and immolates him while uttering supplications. Madman! His son entreats, and he heeds not, and he goes thence to prepare a magnificent feast in his house."

a rudimentary system of physics, is developed a pure system of morals.

Virtue being, like vice, a natural principle—though superior to vice in its results in this life and in others—becomes “a universal law, embracing a vast extent of the air and the immensity of heaven.” Chastity, temperance, lofty thoughts, the contemplation of the primordial *Sphairos* will alone be able to secure for man true happiness, and lead him to the age of gold on earth. This dream of harmony and peace fills the sage with a holy intoxication, and is by the poet embellished with the richest colours.

Anaxagoras, although justly regarded as the founder of spiritualistic dualism, is absolutely void of mysticism, and reveals a far clearer understanding than Heraclitus or Empedocles. His *ὁμοιότης*, or “*similitudo partium*,” combated by Lucretius, his astronomical hypotheses—often ingenious enough—and even the function ascribed by him to an active and intelligent cause, in the formation of the universe, associate him with the Ionian school. Himself an Ionian, having been born at Clazomenæ, towards the last years of the sixth century, he left his country and his property, in order to place himself under Anaximenes. Thereafter, at the age of twenty-five, he settled for thirty years at Athens, where he became the friend, master, and adviser of Pericles. A well-grounded charge of impiety and atheism, from which Pericles had great difficulty in saving him, compelled the philosopher to return to his native place. Here he survived for twenty years, dying in his seventy-second, full of honours, and universally esteemed. His system, a sort of godless pantheism, admits the eternity of matter, as well as the parallel eternity of a regulating principle; the Idea of Hegel, the Will of Schopenhauer, the Unconscious of Hartmann, the *vous*, impersonal, present everywhere, and omniscient, by him substituted for necessity. He fails to see that he merely gives another name, and a perfectly anthropomorphic reason, to the universal motion, to animal and vegetable life. His psychology remains based on physics. Individual souls are for him nothing but manifestations of the general *vous*, subjected to the conditions of the organisms differentiating them. Man is

the most reasonable of animals only because he has hands. Anaxagoras recognises the eternity of the soul, but not the immortality of souls. Nor, as remarked by Aristotle, has he recourse to his intelligent principle, except in the last extremity; that is, when he fails to explain the mechanism of things by the sole combination of the *homoiomereiai*. But in this attempt to explain lies the vice of the system. Nothing is explained except by logic, and logic is indifferent to the universe.

Although Anaxagoras wrote much, nothing has reached us beyond some fragments preserved and commented on by his successors. They suffice, however, to give us an idea of his physics—far more interesting, in our opinion, than his metaphysics.

The substance of the universe is formed, not from one element, nor from four, but from innumerable distinct principles, mingled together in diverse proportions. None of them exist in the pure state, so that it may be said that “all exists in all.” It is only when a preponderating number of similar principles is found united in one body that we recognise their presence. These *homoiomereiai* (*ὁμοιοι*, *similar*; *μέρος*, *part*) constitute the proper character, the essence of each thing and of each being, their form, colour, type, species, functions. There is no vacuum—as was also maintained by Empedocles—but only varying densities; in a further void we still meet with the resistance of the air. While refuting the theory of Anaxagoras Lucretius states it very clearly :

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Principio rerum quom dicit homœomerian,
Ossa videlicet e paucillis atque minutis
Ossibus hic et de paucillis atque minutis
Visceribus viscosâ gigni sanguinenque creari
Sanguinis inter se multis coeuntibu' guttis
Ex auriq̃ue putat micis consistere posse
Aurum et de terris terram concresecere parvis,
Ignibus ex ignis umorem umoribus esse,
Cetera consimili fingit ratione putatque
Nec tamen esse ulla parte idem in rebus inane
Concedit neque corporibus finem esse secundis.

“De Rer. Nat.” l. 834-844.

Motion has very slowly reduced the primeval chaos to order. The four elements, in which are contained the most varied principles, became disentangled and disposed one above the other; the earth becoming separated from the water, and rocks from the earth condensed by the cold. Stony elements, which become inflamed in the igneous regions, are detached by the animated ether with a rotatory motion from the surface of the earth, which remains itself motionless in the centre of the universe. These are the stars. The sun is such a burning mass of stone, larger than Peloponnesus; while the moon is a true earth, receiving its light from the sun. The milky way is an aggregate of stars, visible to us when the brightness of the sun is intercepted by the earth.

The influence of this system, which contains the germs of observation, and hypotheses far from despicable, is perceptible in the mixed doctrine of Diogenes of Apollonia, a condisciple of Anaxagoras. Not that he accepts the doctrine of the *homoiomereiai*; but, more faithful to the teaching of Anaximenes, he proclaims the air to be the origin of all things; establishing, by some very poor arguments, that matter can admit of no more than one principle. But, struck by the order reigning in the universe, he attributes intelligence to the air. This is for him a very imperfect means of avoiding dualism, which is in truth very useless, explaining nothing more than does primordial unity. The air—that is to say expansion, that is matter and fatality—therefore contains intelligence, thought, freedom. But Diogenes was not in a position, we do not say to prove, in the then defective state of the sciences, but even to maintain, this ingenious and relatively true theory.

While Pherecydes, Pythagoras, Heraclitus, Anaxagoras are thus in various ways preparing for the advent of dualistic philosophy, which, admitting the distinct reality of matter and spirit, assigns to the second the government of the first, in opposition to Parmenides, whose absolute idealism denies the substantial reality of the physical world, Leucippus and Democritus, following in the path laid down by Anaximander, establish absolute materialism on the exclusive authority of experience and of the inductions suggested by it.

these must also, no doubt, claim to build on experience, whose results they accept. But they subordinate it, in the first place, to human reason, which yet proceeds from it; and in the second to a general and higher reason, which is an illegitimate extension, an anthropomorphic mirage of human reason. These are the rationalist philosophers.

The second reject experience, denying its efficacy, after, by false inductions, deriving from it the principle of their doctrine. They recognise existence only in an entity endowed with general reason, as man is gifted with human reason; and, reversing the order of things, they see in human reason the reflection of the general reason—a parallogism borrowed from them by the rationalists. They are the idealists, or metaphysicians, *κατ' ἐξοχήν*. Their system has but two logical conclusions—mysticism and scepticism.

Materialism alone avoids these illusions. It avoids the mistake of imposing on the whole the law of one of its parts, and leaves to each being, to each group, its proper place in the disposition of things. Its errors—always capable of being rectified—are those of the science of the times; it may draw from an imperfect observation false inductions and hypotheses, but it subjects them beforehand to the repeated correctives of experience, which preserves them from metaphysics. While maintaining that all bodies, with their properties, result from substantial combinations, it in no way denies the properties of these bodies. It suppresses nothing of what has been called human intelligence; on the contrary, it carefully and searchingly studies its various developments and applications. But it seeks for this intelligence where it is to be found—in the centre and the conditions producing it, in the living organism.

Long before the study of the brain and of the nervous system had revealed the origin, the seat, and mechanism of intelligence, the most summary observation was sufficient to enable materialism to detect in the mind, and in reason, attributes of the living being, acquisitions of the senses, qualities that make their appearance, grow, and disappear with the individual form. It makes use of intelligence and reason, since these are at once the products and the instruments of knowledge; but it makes a legitimate use of

them, a use ever controlled and limited by objective experience. From the fact that they reveal to it the universe, it does not conclude that they are the *raison d'être* and the cause of the universe—an error resembling that of the Brahmans, who deify the word and prayer, placing them above the gods, because they evoke the gods.

Nothing positive is known regarding the lives of Leucippus and Democritus, and it is uncertain whether the first—the acknowledged inventor of *atomism*—was born in Miletus, Elea, or Abdera. We know, however, that his philosophy proceeds from the Milesians, and that it implies a perfect knowledge of the Eleatic school. It is also certain that Democritus was a native of Abdera, a Greek colony in Thrace; and that master and pupil, confused in the memory of men, must have lived for a long time together. Both of them, like Empedocles and Anaxagoras, flourished in the first half of the fifth century.

Democritus seems to have been born about the year 494; and is believed to have spent a considerable fortune during his youth, in visiting India, Ethiopia, Chaldaea, Persia, Egypt, Magna Græcia, Athens; everywhere initiating himself in the hidden doctrines of the priests, everywhere an attentive pupil of the philosophers. But these traditions are not very probable, except as regards Egypt, Athens, and Southern Italy. On his return to Abdera, the public reading of his great work, the *μέγας διάκοσμος*, is said to have more than requited him for the loss of his fortune, and to have secured for him the chief magistracy of his native place. It is also said that Hippocrates cured him of a passing fit of insanity, and that his life was prolonged for more than a hundred years. As regards his genius and his style, which rivalled that of Plato, we have the testimony of all antiquity. He had embraced the whole field of knowledge—zoology, botany, physics, mathematics, astronomy, medicine, logic, ethics, poetry, grammar, music, and even strategy. Of the seventy-two works ascribed to him by Diogenes Laertius there remain only a few fragments, scattered through a multiplicity of authors. Fortunate Aristotle! For who knows how far his glory would be diminished by a rediscovered Democritus! Even

in the mutilated state in which it has reached us, the doctrine of Leucippus and Democritus stands out boldly ; and modern science, while destroying the letter, has preserved its spirit. To be convinced of this it will be enough to read the "*De Natura Rerum*" of Lucretius, in which it has been embodied, in the state in which it was transmitted by Epicurus to the Roman poet, with a few secondary modifications.

Atoms in motion, and space wherein they move ; such are the two sole and necessary conditions of existence of bodies and their properties. Matter and the void make up the whole system. Substitute for the void the imponderable ether, for the absolute the relative void, and you get the very formula of modern physics and chemistry.

Atoms—eternal, indivisible, countless, endowed with divers forms, with oscillatory (undulation), circular, or rectilineal motions—complete the universal plan of nature. Their junctions and combinations, in varying proportions, constitute the mixed molecules of the four elements, and consequently all the solid, fluid, living aggregates, all forms, colours, smells, and tastes, all organisms and functions, intelligence no less than instinct ; all forms exchange their atoms, one nourishes the other, all are resolved in their elements. Nothing comes of nothing ; nothing returns to nothing.

The soul is a body ; it is formed of the most subtle, active, and perfect fiery atoms, and resides in the breast. To it the organs of the senses transmit the images of outward objects ; these images, material in themselves, are the effluvia of things—faithful impressions adapted to each of the senses. Sensation is thus reduced to immediate contact or transmission. Ideas are the combinations of images, or *idols* (*εἰδωλα*) ; thought, the result of the impressions produced on the soul, begins, grows, and ends with the living organism by which it has been elaborated. The human person, which is the succession, in one and the same soul, of all the perceptions and ideas emanating from it, vanishes with death, by the dissolution of the form of the body, into its scattered atoms.

What we call reason is nothing but the treasure of knowledge

accumulated by sensation, and associated, or dissociated, by their affinities and antipathies. Sensation reiterated, controlled by sensation, is the sole *criterion* of reality, always relative to the organism perceiving it. To ascribe this function to reason says nothing, or is the same thing as ascribing it to sensation, since from it proceeds reason itself.

Pleasure and pain, good and evil, accompanying sensation, and whose cause lies in the form of the atoms, are the origin of moral ideas. From being sensuous they become intellectual; from being individual, or isolated, they become mutual, through social contact. Abstract, and reduced to the condition of general ideas, they give place to rules of conduct directed towards the acquisition of the good, the avoidal of the bad, to secure the one and spare the other for our fellow-men, on the condition of reciprocity. The general interest has rendered these rules obligatory; but they apply to man alone, just as pleasure and pain belong only to living organisms. Morals and justice are therefore purely human things, which is far from at all lessening their value and necessity. Absolute good is nothing but an abstraction derived from present and positive good by means of comparison. Such absolute good is unattainable. But an attainable ideal, towards which the wise man may aspire, is serenity, equanimity of mind in the presence of inevitable evils and transitory blessings.

Atoms suffice for all; the gods have naught to do in the world. But since the soul has conceived the idea of them, and as all ideas spring from real images and objects, it must be admitted that atomic aggregates, immeasurable in size, and clothed with almost human forms, hover in the air. These phantoms are the gods, who, being at once impotent, useless, and in a state of beatitude, concern themselves neither with the universe nor with mortals. We may admire them, and envy their imperturbable felicity, but it is superfluous and absurd to offer them supplications, which they can neither hear nor grant.

This theology is extremely consistent, once granted the necessity of divine phantoms; but there was no need at all to have recourse to such impassive spectres. The play of thoughts gradually

acquired and transmitted, the fables of the poets, the statues and temples were sufficient to explain the origin of the gods. It is probable that Democritus, no less than Epicurus and Lucretius, were quite as well aware of this as we are; but their prudent irony avoided the extremely inconvenient charge of impiety and atheism.

The *void*, the invention of which is ascribed to Leucippus, has been the subject of much discussion; and the indivisibility of atoms has been warmly contested, though it is now admitted by chemistry, as ether is by physics. A constant topic of raillery have been the round, square, crooked atoms, and the emanations, material impresses, of the outlines and images of all sensible phenomena, although no one has thought of laughing at the "ideas" of Plato. Ridicule has been heaped upon a soul placed in the centre of the breast long before it was known that the soul, as a substance, has no existence, and still more since physiology has discovered the nervous and cerebral mechanism of the intellectual faculties. The authority of sensation was rejected by those who were yet unable to withdraw themselves from its influences. Nothing was easier than this course, seeing that errors of fact strike the eyes, while correct intuitions have long remained without sufficient proof. Still the principle of atomism has remained unshaken, nor has any other system approached that of Democritus in clearness, perspicuity, and experimental value.

Its moral consequences have been assailed on fairer grounds, and they have been used as a weapon, more treacherous than specious, against materialism, which is in no way responsible for them. The fault lies rather with Democritus and Epicurus personally. Ideal systems have quite as much to do with temperament and social surroundings as with doctrine. That of the old materialists proceeds, by a sort of reaction, from the troubles and miseries of the times in which they lived. It is a false doctrine in the present state of society, and it was, in any case, defective, even for them. False at present, because interests, and therefore morals, have changed; always defective, because it overlooks one entire field of experience. The normal state of the atoms being one of motion,

activity being the proper condition of life and of the organism, repose a passing felicity, Democritus, in failing thence to argue for physical and intellectual action, was inconsistent with his own premisses and line of argument. But it may be at least pleaded in his behalf, that, if he did not establish the precept in theory, he did so by the example of his life.

There is a still more serious charge, if well founded, which must here be discussed. Democritus, it is said, and of course with him all materialists, are no less metaphysicians than are the spiritualists themselves. They went beyond their principle—experience—inasmuch as atoms escape the observation of the senses; the void is an entity. But experience forbids neither induction nor conjecture, both legitimate in themselves when starting from, and taking into account, the facts of observation. If legitimate, they may still be erroneous without being metaphysical, unless the sense of this term be needlessly enlarged. But that the perpetual dissolution and formation of bodies, the ever-recurring association and dissociation of divers substances, justify the atomistic induction it is unnecessary here to show. Nor is there anything more obvious than the fact that the motion and condensation of bodies suggest the hypothesis of the void, whether absolute or relative. The atom escapes the observation of the senses. But two hundred years ago this was also true of countless infusoria and fixed stars; yet no one could be accused of being a metaphysician in admitting the possible existence of organisms still smaller than the smallest visible organisms, of stars still more remote than the farthest within our ken. And so with Democritus, who, without possessing the least notion of the constitution and chemical elements of matter, none the less inevitably conceived the reality of almost infinitesimal particles—the foundation of the aggregates whose molecules he could see and touch.

Matter, an abstract and summary expression for the sum-total of bodies, is no more a metaphysical entity than are the words *flock* or *vineyard*. Entities are created, not by abstraction, but by personification and flights of fancy above and beyond concrete nature; so much so that God himself would be no entity unless he

expressed the true or false conclusion and the result of a cerebral elaboration. In a word, is it not childish and inconsequent to call those philosophers metaphysicians who profess to take no account of aught except sensuous reality?

But while making the only certainty within our reach rest on the evidence of sensation; while allowing that reason, so slightly at variance with sensation, proceeds from it; and that its controlling function is reduced to a comparison between impressions, or between ideas born of impressions, Democritus was in no way blind to the entirely relative value of this criterion. He was as well aware as are the modern positivists, or the present school of English sensualists, that everything in the conclusions and judgments of man is relative to the human organism; that apart from the touch, sight, hearing, &c., there is neither form, colour, nor sound; lastly, that the only certainty for which we are indebted to the senses is the knowledge that outside of man there exist realities interpreted by sensation. But Democritus does not appear to have been sufficiently convinced that this certainty is a solid and adequate foundation for all knowledge. This, however, is equally true of more than one of his modern successors. While combatting and overthrowing the claim of the Eleatic school to absolute truth, he acquired the habit of speculating on absolute truth, thus gliding imperceptibly towards the barren precipice of scepticism; which, whatever Ad. Franck* may say to the contrary, is not "the logical consequence of his system." Of this there can be no doubt, after the unanimous statements of Aristotle, Diogenes Laertius, Sextus Empiricus, and Cicero. "There is nothing true," he said, "or if truth exists we do not know it. We have no means of ascertaining the truth of anything. Truth is at the bottom of an abyss. We do not even know whether we know aught, or whether we are living in the most absolute ignorance; neither do we know whether anything or nothing exists." These aphorisms, probably mere fragments of polemical writings, in which he wished precisely to establish against his opponents the

* "Dictionnaire des Sciences Philosophiques."

authority of ~~sensuous~~ observation, have evidently been interpreted by his immediate followers in the sense of an absolute scepticism. And we know that "the most determined sceptics of antiquity, Protagoras, Diagoras of Melos, and Pyrrho himself, were formed by the lessons or by the writings of Democritus."

By rejecting the Absolute of the Eleatic thinkers, by disparaging sensorial or experimental certainty in the very name of this Absolute itself, by discouraging objective science, deprived as it still continued to be for many centuries of all the instruments of progress, the group of sceptics and *sophists* whom we now approach, prepared the way to which Socrates committed philosophy for two thousand years. They anticipated the advent of subjectivity. Nevertheless we should avoid the mistake of giving implicit trust to the judgments of Plato on the sophists, who are known to us only through their adversaries. But such was their prestige that these adversaries themselves were influenced by it; and it was from them that Socrates and Plato derived that captious method of dialectics which we admit has been far too much admired, and which succeeded in diverting philosophy from the experimental method. However, they at least created, so to say, rhetoric, or the oratorical art; and by the subtlety of their reasonings they sharpened the argumentative genius of Socrates and his school. Such are the advantages, tempered by drawbacks, for which humanity is indebted to the sophists.

The most serious charge brought against them is the laxity of their ethics, or rather their negation of morals, their claim to plead indifferently on either side of the question, the high price at which they valued their instructions. But at least on this last point some indulgence may be allowed, if they cannot be altogether acquitted. Some of them sold their talents; the majority, by charging a high remuneration, merely exercised an undoubted right. Science and art are treasures often far too unprofitable to justify us in blaming those who, without acting unscrupulously, derived substantial gain from them. Had the Sophists been, as implied by their title, paid teachers instead of dealers in philo-

sophy and eloquence, their name would not have become synonymous with charlatan and cheat.

Hegel has undertaken to restore the reputation of the Sophists. In their negation of being (in itself) he wished to recognise his own doctrine of the identity of contraries and of the eternal that is to be; in their assertion of the sovereignty of the human intellect, the principle of subjectivity. He makes them the precursors of Socrates and himself: but, without being altogether incorrect, his thesis is more ingenious than solid.

In our opinion the chief mistake of those who have condemned or praised the Sophists consisted in grouping them all in one category; judging them in the mass, as if they were a uniform school that took its rise during the course of the fifth century. The common use of the same rhetorical art, and of similar dialectic processes, is not sufficient to characterise them, and they must still be classed according to their doctrines and their individual worth. Numerous and fundamental differences will then be discovered in their theoretical and practical teachings. Gorgias will no longer be confounded with Protagoras, nor the Eleatic nihilists with the atheists and sceptics of Abdera. And as an unexpected consequence for the moderate idealists, all the honour of this obvious distinction will redound to the followers of the experimental method.

Leaving aside the eloquent speakers, such as Hippias, and the mere quibblers, such as Euthydemus and Dionysodorus, the heterogeneous group will readily resolve itself into at least two opposite schools, headed respectively by Parmenides and Democritus. On the one hand we shall have Gorgias of Leontium, in Sicily, with his pupils Polus of Agrigentum, Callicles and Critias of Athens (the latter the most hated of the Thirty Tyrants), Thrasymachus of Chalcedonia, &c.; on the other Protagoras and Prodicus, Diagoras of Melos, Nessus and Metrodorus of Chios, Diomenes of Smyrna, Anaxarchus, the friend of Alexander the Great, and master of Pyrrho.

The work of Gorgias "On the Non-Existent, or on Nature,"

the divisions and leading arguments of which have been preserved, betrays by its very title its Eleatic origin. In fact Gorgias (485–380 ?), originally a pupil of his fellow-countryman Empedocles, had made a special study of Parmenides and Melissus. His three propositions—"Nothing exists : If anything exists we cannot know it : If anything exists, and can be known by us, we cannot make it known to others"—are undeserving of serious refutation. His arguments, in which Parmenides and Heraclitus are introduced, mutually nullifying each other, are unequalled for childish subtlety, except by the reasoning of Zeno of Elea against the existence of motion. We all know the witty rejoinder of Diogenes : Zeno denied motion ; Diogenes walked.

In other respects this Zeno was an honest man and a patriot and perished of a cruel death in his attempt to rescue his native place from tyranny. This is what distinguishes him from Gorgias, who was nothing but a skilful and brilliant rhetorician, equally strong on both sides of the question. It was he who, coming in 424 to implore help for the Syracusans, induced the Athenians to undertake the disastrous Sicilian expedition. His teaching demoralised the Athenian aristocracy. His theory of happiness and justice, vitiated by his metaphysical nihilism, ended in the equality of vice and virtue, the worship of individual pleasure, of power and wealth at all costs, raising to a maxim and rule of conduct an antisocial principle : might is right. The laws, said his disciples, were invented by the weak to check the strong ; the idea of justice being equivalent to the idea of interest, who will blame the strong if, in his own interest, he burst the fetters of the law ? Who ? Assuredly those whose interest will thereby be sacrificed. If justice is based on interest, it is not interest, but the balance of interests. For having overlooked this elementary observation, Gorgias has earned the title of spiritual father of all reactionaries, of all perjurers, of all approvers of violent and unscrupulous revolutions. His memory ought to be endeared to them, for he had the sense to die loaded with wealth and more than a centenarian.

Very different are the character, teachings, and life of his contemporary, Protagoras of Athens, and of the Ionian Sophists.

Instructed by Democritus, favoured by Pericles, lawgiver of Thurium in Italy, honoured by all enlightened minds, Protagoras died for having denied the existence of the gods. He had dared to read, or cause to be read, a treatise on the nature of the gods, in the house of Euripides, and being consequently accused and condemned of impiety, he perished in his flight. His works were publicly burned in Athens. Sophist in his dialectics and in his greed of gain, Protagoras is in his doctrine a true, a great philosopher. His writings have perished, but their value is shown by the vain attacks of Plato, in the *Protagoras* and the *Theætétus*.

In physics he maintains that motion is the principle of forms, that matter is fluid and shifts incessantly. Without renouncing Democritus he inclines towards Heraclitus. But, while denying the absolute being, he takes care not to contest relative and sensuous existence. As regards the gods he occupies a neutral position. "I cannot know," he says, "whether they are or are not. Many things combine to leave it an open question—the difficulty of the subject, the short duration of human life."

In psychology and logic he is a consistent sensualist. "Man," he argues, "is the measure of all things, the criterion of truth." The objections of the *Theætétus* lead to false conclusions. Plato holds that, if sensation is the origin of science, intelligence must be ascribed to the lowest animals; that, sensation varying from man to man, and from moment to moment, there is no longer any true or false, any good or evil. If these dialectics are subtle, let us also acknowledge that they are very weak. How are we here concerned with the intelligence of animals, an intelligence which cannot otherwise be gainsaid? The question is that of human intelligence. And how can the varying character of the sensations destroy their constant mean, the measure of their reality? Aristotle was a victim to the same sophisms.

The ethics of Protagoras are based on the careful observation of morals, and of the rules thence derived. This is not the view of the metaphysicians who uphold the doctrine of the good in itself, of duty existing before virtue. Hence Plato and Aristotle accuse Protagoras of effacing all distinction between the just and the

unjust. And yet, when asked by Socrates whether "to live in pleasure is a good, and to live in pain an evil," Protagoras answers: "Yes, provided we enjoy honest pleasures only." He denied no virtue, but only refused to *virtue*, to the just and unjust, an absolute essence. In his eyes virtue is merely an abstract term, the generic name of justice, knowledge, temperance, sanctity, &c. "All these virtues are parts of virtue, not as the particles of gold are like each other and the whole that they constitute; but as the various parts of the face, which differ from the whole and from each other, each possessing its own proper character." The comparison is ingenious, and, in the terms in which it is put by Plato, the question is settled in favour of Protagoras. The unity and the cogency of the doctrine cannot be gainsaid.

The famous apologue of Heracles between Pleasure and Virtue, attributed to Prodicus, is a further evidence of the moral tendencies of the Abderite school. Here the hero acquires immortality by choosing virtue.

Prodicus is the most illustrious pupil of Protagoras. Sent as an envoy to Athens by his fellow-citizens of Cos, he there taught grammar, dialectics, and ethics, conducting classes at various prices, lavish of his wealth, living well, and bold of speech. No one has more clearly defined the gods. "The gods," he said, "are the product of our gratitude for the things that are useful to us." Accused of atheism, denounced by Aristophanes, in "The Clouds" and "The Birds," he was, like Socrates, condemned to take hemlock, and he drank it. In this he was less fortunate than Diagoras ofelos, freedman and disciple of Democritus, who, when condemned to a like fate (416-412) contrived to take refuge in a labyrinth, where he died in peace. He had, jointly with Alcibiades, studied the Eleusinian mysteries. "Nothing but death preceded," was one of his aphorisms; and to him is also ascribed a sentiment even more profound than witty. A devotee was vaunting in his presence the power of the Cabiri, and the number of votive rings suspended in their temple by those who had been saved from an imminent peril. "How would it be," he retorted, "if all the men who have perished could present theirs?"

Nessus and Metrodorus of Chios, Diomenes of Smyrna, Anaxarchus of Abdera, all either direct disciples or adherents of Democritus, form a group apart. They are the Sceptics, properly so called. Metrodorus "did not even know that he knew nothing." Anaxarchus, the *eudemist*, whose philosophy had for its object the positive search after happiness, was the master of Pyrrho.

Between the two schools of the Sophists—those who denied existence, motion, morals; and those who, admitting the apparent, sensuous, or relative existence of things and beings, that is, of unqualified existence—the rationalistic and dualistic school of Anaxagoras and Archelaus, akin alike to the Eleatic and Ionic philosophers, occupied a middle position, and was continued in Socrates, who was born at Athens in 470, and died in 399 B.C.

§ 3.—*Rationalistic Dualism: Socrates—Plato—Aristotle.*

It is scarcely possible to separate Socrates from the group of Sophists amongst whom he lived, whose schools he frequented—(for was he not a pupil of Prodicus?) whom he ceaselessly combated with their own weapons—subtlety and scepticism. It is by irony and dialectics that he sought to demonstrate at once the experimental insufficiency of the great Ionian syntheses and the barrenness of the Eleatic idealism. His originality and personal influence, his noble death, and, above all, the protracted sway of that subjective method, the intuition rather than the actual establishment of which is ascribed to him; lastly, the charm of the writings in which he is the central figure, have, so to say, brought him into full relief and given him the foremost position. In him is summed up all the wisdom of the fifth century. Yet the foregoing pages are enough to correct such an error of perspective. It is necessary to remember that Empedocles, Anaxagoras, Democritus, Protagoras, Hippocrates were his contemporaries, and that his ingenious criticisms, his vague moral and intellectual theories, cannot be for a moment compared with the grand views and powerful syntheses of these great thinkers. It was they who

conceived the whole philosophic edifice, and established its constitution; by Socrates it was restricted, dismembered, again reduced to the region inhabited by men. They either discovered, or instinctively followed the true method—objective experience, the study of nature as a whole. Socrates interrupted the progress of general science, and diverted thought towards a lesser sphere—towards a part, which cannot be understood when separated from the whole. In him philosophy deviated from its right course.

Doubtless he tempered the zeal of the enthusiasts for a premature science. He was doubtless right in convincing them of the uncertainty of their observations, the emptiness of their hypotheses, their inevitable contradictions, in calling upon them again to begin their studies *ab ovo*. But from what? The knowledge of the human intellect and the moral precepts: *Γινώθι σεαυτόν*! Know thyself! A good and useful maxim if preceded by this other: Know the outward nature that rules thee, the centre in which thou livest, the conditions of thy existence! A false and disastrous precept if it means: The knowledge of man is equivalent to the knowledge of all things. Yet this is how Socrates meant it, and this it was that plunged Plato into the vagaries of a dream, brought Aristotle to a standstill through the exigences of an overwrought logic. He did not perceive, he never for a moment suspected, that his psychology was more defective, more premature, than the Ionian physics. It failed to reveal man to him; what could it tell him of the universe? For, while denying the reality of the world, he could not dispel it from his mind. The origin of things, the succession of natural events, beset him in spite of himself. By what do his psychology and ethics replace the constant physical laws perceived or conjectured, by Anaximander and Democritus? By Providence; by the transfigured shadow of human reason. He again revives the work, and restores while substituting the error of feticism and the religions; he is the thousandth creator of metaphysical Anthropomorphism. He supplants science by metaphysics for two thousand years; he subordinates the general reality to the particular ideal of reason. For him, far more than for Protagoras, "man is the measure of all things."

With many others, Paul Janet asserts that "Socrates founded *not such and such a philosophy, but philosophy itself*; that is to say, the philosophic spirit, the spirit of observation and of analysis, which sets itself to *discover what is*, instead of assuming what might be." But in this commonplace we, for our part, can *discover* nothing but an illusion, amounting to the perversion of truth; so much so that, in order to define the work of Socrates, it is merely enough to reverse the terms: Socrates founded, not philosophy, but, according to Xenophanes and many others, metaphysical anthropomorphism; not the spirit of observation and analysis, but the logical spirit which sets itself to *deduce* the whole from the part (which is contradictory), to assume what might be, to invent what is not in order to avoid discovering what is. And to this we are necessarily led when we place the end before the beginning, the intellect before the organ that produces it, and before the real medium which produces this organism. This is why Socrates is no philosopher, in the true and higher sense of the word—a critic, a doubtful moralist, a man of parts, a sage he may have been, and, alas! also a metaphysician.

We may now yield to the pleasure of sketching his intellectual and courageous life.

Son of a statuary and of a midwife, Socrates began his career as a sculptor. Diogenes Laertius saw in the Acropolis of Athens some veiled Graces attributed to him. Of his youth nothing is known beyond what may be conjectured from the opinion of Zopyrus, a celebrated physiognomist, who fancied he detected in his strange features the index of certain vicious propensities. He himself declared that he had conquered his evil inclinations; of which he retained nothing except a certain freedom of manners, enabling him to mingle with impunity in scenes of debauchery. His love and worship of the beautiful reveal his artistic nature and education. He learned and sedulously cultivated music, and Prodicus taught him eloquence and ethics, in which he found the harmony of the good and the beautiful.

There can be no doubt that he was initiated into all the sciences of his time. Theodorus of Cyrene is mentioned as his instructor

in geometry. But he had not the temperament of a true savant; and what most allured him in the writings of Anaxagoras was the invention of the *vous*, the spirit of order, the ideal reason that moulded forms and disposed all things, like the statuary, with an eye to harmony and beauty. If to these natural or acquired elements be added the prevailing passion for subtle dialectics, and the Athenian taste for refined conversation, we shall get the key to the individual, his life and thought.

He early resolved to conform his actions to what seemed reasonable, and worthy of a well-regulated mind. His love of the fitness of things, and of justice, alienated him from active politics quite as much as did an assumed incapacity for the management of affairs. He often took pleasure in bantering the ambitious young men of the times, who aspired to rule without any clear notion of government and finance. Having assumed the part of general moralist, he wisely avoided the more ordinary causes of human error. But it was far from his intention to wrap himself in a scornful diletteantism. Recognising his position as the subject of a state, he accepted all the offices and duties of a good citizen. A true soldier, he fought at Delium, at Potidæa, and Amphipolis, saving the life of Alcibiades and Xenophon. On his return, appointed a prytanis, he publicly defended the ten generals who, after the victory of Arginusæ, had neglected to bury the dead. He respected the laws of his country even in their excess, even when they condemned him to take the poisoned cup. He was an enlightened conservative, inclining towards a moderate aristocracy; for, without being a politician, he had his political views. But however little disposed he might be towards a democratic form of government, he could resist tyranny, from whatever source it came. When the Thirty, amongst whom he numbered both disciples and friends, undertook to save society by murder and legal assassination, he stood aloof, and refused to deliver up a certain Leo of Salamis, who had taken refuge in his house.

Socrates led an open life, and he could afford to do so. In the gymnasium, beneath the portico, in the public places, he went about conversing with all, giving advice, warning, counselling.

kindred ; but, above all, questioning, pressing home artists, men of learning, rhetoricians ; dispelling ignorance, correcting judgments, delivering minds, as he said, like the true son of a midwife. Caustic, but cheerful, a pleasant comrade, he fascinated the intelligent youth of the times. After imparting instruction in the open air all day long, he continued his lessons at festive entertainments, in the worldly *salons* of the day, and even in the boudoir itself ; instructing Aspasia and Theodota in rhetoric and “ the art to please.” Hence, doubtless, the matrimonial storms to which he was subjected on his return.

It may be difficult to understand the enthusiasm that his genius and eloquence inspired in the most frivolous of his brilliant contemporaries ; but not the mistrust and hatred he scattered almost wantonly amongst the quarrelsome and timid, amongst those courting popularity, who were piteously assailed, galled, overwhelmed by his sarcasms. Speaking of everybody, and on all subjects, he spared no person or deed calling for censure.

Whilst eagerly courted by Crito, Phædo, Cebes, Euclid of Megara, Xenophon, Plato, and a hundred others, foremost amongst whom the gay and brilliant Alcibiades, a formidable cabal was gathering strength in secrecy, fomented by Theramenes, Critias, Melitus, and Anytus. Aristophanes, delighting in scoffing at the arch-scoffer, made himself the echo of their mutterings and slanders. Was he aware that his envenomed sarcasms were distilling the deadly hemlock ? By no means ; but he yielded to his reactionary instincts quite as much as to professional jealousy. While accusing Socrates of corrupting the Athenian youth, and insulting the gods, it does not follow that he respected them himself. Look at the abominations of his “ *Lysistrata*,” and his expedition of Bacchus to the lower regions. But he claimed a monopoly of the old manners and the national Olympus, an inexhaustible source of comic humour, not to be poached upon by others. To purify taste and reason, to cast discredit on mythology, he regarded as an attempt to defraud him of his most highly valued privilege.

But, however this be, the accusation of Anytus and Melissus might seem almost taken bodily from “ *The Clouds* : ” “ Socrates is

guilty, inasmuch as he does not recognise the gods of the Republic, setting up in their place demoniacal extravagances; he is guilty, inasmuch as he corrupts our youth." What truth was there in these assertions?—They may be said to have been at once entirely true and entirely false. In practice Socrates recognised the gods of his country; he sacrificed publicly on their altars; and his last words were: "We owe a cock to Æsculapius." But in theory he suppressed them, since he put in their place one god and providence. The myths were for him nothing but symbols and fables, objects of his cautious irony. Besides, he skilfully defended himself by appealing to the supremacy yielded to Zeus by all the poets and philosophers. Hence it was not monotheism of which he was accused, when reproached with those demoniacal extravagances; that is to say, the famous *demon*, or *familiar*, who accompanied him everywhere, who inspired him, and of whom he spoke freely. Whether this was a real hallucination, a purely verbal image, or a belief in protecting genii, the charge, from the polytheistic point of view, was absolutely void of sense. Paganism, like Christianity, recognises demons of all sorts. There remained the charge of corrupting youth, by which it is difficult to say what his enemies could have meant. Did they refer to the singular theories of love ascribed by Plato to his master, to certain suspected relations with Alcibiades and Phædrus? No such severity could have entered the minds of the Greeks. Aristophanes shows us Socrates attacking the paternal authority. But the comical sophisms he places in the mouth of a young wag could scarcely serve as a pretext for such an unlikely charge. Hence they doubtless meant that Socrates corrupted youth by turning it aside from the national belief. The last motive of their persecution thus clearly resolves itself in the first.

In a word, the process was absurd and indefensible. So easily might Socrates have gained his cause that one feels tempted to regard his death as an act of suicide. His *Apology*, as preserved by Xenophon and Plato, is doubtless full of noble sentiments, but also of unseemly boasting: "Were you to say to me, 'We acquit you of the charge, but on condition that you cease your habitual investi-

gations ; Athenians, I would answer, I respect you and I love you, but I will obey *the god* rather than you. Acquit me or not, I shall never act otherwise, were I to die a thousand times." We also know that he petitioned to be maintained at the Prytaneum to the end of his days—a very misplaced act of heroism, a perfectly uncalled-for stroke of irony. Besides, he had the option of condemning himself to a small fine, and going freely to prosecute "his habitual investigations."

So ill-founded was the charge that, after so much damaging eloquence, the sentence of condemnation was passed by a majority of five only. No doubt upwards of eighty judges voted for death ; but the penalty was determined by the law, and it was almost impossible to avoid applying it. To a certain flight from prison, with Crito, Socrates preferred the poisoned draught, pretending in this way to respect the laws of his country. Thus was it ordained by the gods. It may be believed that his "familiar" was not a pure fiction, but one of those phantoms created by hallucination, embodied by infatuation. It has been asserted that there was quite as much insanity in the case of Socrates as in that of Pascal.

But these qualifications in no way detract from our admiration of his calm composure in the presence of a useless death. To the last moment he conversed with his disciples. His solitary hours he devoted to poetry, turning *Ætôp* into verse and composing a hymn to Apollo. He also vowed a cock to *Æsculapius*—a supreme instance of irony on the part of that "unabashed jester," as Aristophanes called him.

As he committed nothing to writing, it becomes very difficult to define the method and the moral and metaphysical doctrines of Socrates. It would be hopeless to look even for any logical exactness in the reveries, the æsthetic subtleties, and excellent aphorisms of practical morality ascribed to his master by Plato. His relentless questioning, or "Socratic irony," and his "obstetric skill" in the delivery of minds amount, at the utmost, to more or less ingenious dialectic devices and methods of instruction. The ~~with regard to~~ study of self, was for Socrates mainly a means of acquiring prudence, reserve, virtue. Yet it is this which in his

teaching takes the place of all philosophic method. For it is impossible to regard as original and fruitful discoveries such commonplaces as: "The only thing I know is that I know nothing: Those who wish to purify their souls should in the first place get rid of the pretensions of an imaginary wisdom, in order to prepare it for the reception of the knowledge which it needs." Or this other: "There is no more shameful ignorance than to believe what we have no knowledge of and there is no good equal to that of being delivered from an erroneous opinion."

Nor did Socrates himself remain faithful even to such trite and prudent formulas as these. Without any notion of general history, anthropology, anatomy, physiology, he yet fancied he knew man. Regarding intelligence and its faculties as irreducible principles, these intermediaries between the organism and action he converted into causes pre-existent to all phenomena, whether interior or exterior, confounding generalised abstractions with the essence and motive power of things. He introduced the metaphysical conception of the universe, a conception antagonistic to all observation and to all legitimate science. More than anyone else he believed in what he had no knowledge of. So far from being, as Aristotle asserts, "the inventor of induction and definition," he was their destroyer, since he deliberately overlooked their real element.

Justice, we are told, he defined as "the knowledge of what is just;" courage as "the knowledge of what is and is not terrible;" piety "the knowledge of the lawful worship due to the gods." But what do we learn from such vicious circles, in which the question is defined by the question itself? To say that just, courageous, or pious actions are the applications of a general idea of justice, courage, piety, is to fall into an illusion void of sense.

Man, or rather the human intellect superficially observed and imperfectly known, Socrates constituted the centre and the law of the universe. From the fact that individual and social interest has led man to the desire, and then to the idea of good and of improvement; from the fact that the first efforts of art have evolved various laws of harmony, and the idea of the beautiful, Socrates concluded that the world was conceived and governed, with a view

to the good and the beautiful, by an intelligence analogous but superior to that of man. This is the moral, the providential god (Xenophon's "*Memorabilia Socratis*," Dialogue between Socrates and Aristodemus the Lesser), the idea of the godhead, of an intentional cause and of finality which we have already met at the bottom of all religions, of all myths, and even in the crudest feticism. It is the anthropomorphic chimæra, which first derives god from man and then derives man from god.

From the standpoint of philosophy it is a secondary matter to know that Socrates associated a pure and elevated moral system with the metaphysics of final causes. His probable, though still doubtful, belief in the immortality of the soul, in inferior divinities, and familiar demons also concerns us as little as does his ascertained faith in oracles and omens. Still they must be noticed as indications of his mystic tendencies. In order to characterise the vague doctrines and disastrous influence of Socrates it is enough to reduce to its principle elements the legacy he has bequeathed to us. To him we are indebted for : the moral entities ; the absolute good and beautiful ; the god of reason ; final causes, and providence ; in fact, the sum total of metaphysics.

This brave and honest citizen, this martyr, artist, and captious gossip, no less eloquent and vivacious than superficial, has inflicted incalculable evil on human thought.

Before coming to Plato, who was destined to push to their extreme consequences the metaphysical principles of his master, we should mention some philosophers, disciples, or auditors of Socrates. Such were Crito of Athens, his most intimate and faithful friend, whose works have perished ; Phædo of Elis, founder of an obscure school, later on absorbed in that of Menedemus of Eretria, half Sceptic, half Eleatic ; Euclid of Megara (not to be confounded with the Alexandrian geometrician), whom Socrates failed to convert from the nihilism of Parmenides and Gorgias. Euclid's pupils, Eubulides and Stilpo (of whom the latter was accused of impiety for saying that Pallas Athene was the daughter, not of Zeus, but of Phidias), mingled with the doctrine of the Absolute Being the universal scepticism which flows directly from it, besides the most

vicious subtleties of dialectics. To those must be added Antisthenes of Athens and Aristippus of Cyrene, born in 420 and 41 respectively; both of whom falsified the ethical system of Socrates while adapting it each to his own temperament.

Aristippus, young, handsome, wealthy, addicted to sensuous pleasures, was allured by the amiable traits in the character of Alcibiades' companion and associate. He saw him smile at the banquet and in the boudoir; he heard him discourse on love, and plead for the courtesans, like a judge of the refined social amenities. Repeating, after his master, that good is the moral end of man, the goal of life, he assimilated good to present, immediate pleasure, to the gratification of the natural instincts. He placed pleasure, not in repose, or the serenity of the philosopher, but in enjoyment and the activity that procures it. His ideal was *ἡδονὴ ἐν κινήσει*, pleasure in motion. Amongst his followers were his daughter Arete, his grandson Aristippus Metrodidactus, pupil of his mother, Theodorus the atheist, and Anniceris of Cyrene, who, in spite of their somewhat lax morals, were otherwise very honest citizens. Theodorus instructed Plato in geometry, and Anniceris redeemed him from slavery. The latter associated with the pleasures of the senses those of the intellect; he distinguished between evil propensities and good instincts, taught and practised veneration for ancestry and love of country. Anniceris has often been included in the school of Epicurus, which he really approached nearer than any of the philosophers of Cyrene. But although his ethics were more elevated than those of Aristippus, and to some extent more human and practical than those of Epicurus, they were not the outcome of a comprehensive theory of the universe. They were above all a utilitarian wisdom. The Cyrenaic philosophers were no doubt those whom the vulgar called Epicureans; but we shall see that no one was less so than Epicurus himself. If many amongst the worldly pupils of Epicurus lived like disciples of Aristippus, it was because the two schools had become confused. Indeed, it could scarcely be otherwise, though the glory of Epicurus has none the less suffered from the circumstance.

Antisthenes was the counterpart of Aristippus. Apparently

more faithful to the true moral conception of Socrates, he diverged quite as much from it both in practice and in theory.

For him good resides in virtue, in justice; all the rest is indifferent. This, with deism, is all he retained of the Socratic teaching. Pleasure being the shoal, and suffering the test of virtue, man should avoid the one and seek the other. Mental enjoyment is as much to be feared as sensual indulgence. Hence science itself is banished from the doctrine of Antisthenes, which is exclusively a moral faith. Virtue consists in avoiding all temptation to sin, and suppressing all artificial wants, all social conventions—marriage, family ties, civic duties. The man alone is free who returns to a state of nature. He is the true philosopher, equal in wisdom to the gods, who knows no wants or evils. And the wise man, being the first of beings—a god in fact—everything is given to him over and above—all science, rights, and blessings. For him the laws, like the arts, are mere dust which he tramples under foot. In this theory it would be easy to point out many errors and contradictions characteristic also of the asceticism of the Stoics. The wise man of Antisthenes is the ancestor of the wise man of Zeno; and how many teachers such as Antisthenes have been produced by Christianity, Brahmanism, Buddhism, and Islam?

In any case the theory is sufficiently condemned by the practice, which degenerates to foulness, ignorance, the dissolution of all family and social ties. Antisthenes was a sort of fakir, a marabout, a sort of snarling dog. This name, which he himself assumed, was adopted by his disciples, for Antisthenes was the founder of the Cynics (from *κυν*, dog). He wrote much; nor was his severe logic without merit, had he only known how to apply it. He wisely taught that nothing "could be defined by its essence, and that we must be satisfied with defining it by its qualities or its relations to other objects." He thus destroyed the illusion of a self-existing being. But his fame was due not so much to a few correct ideas as to his faults and extravagances. His rudeness, his very rage, attracted the attention of the hypocritical charlatans and lovers of eccentricities—a class numerous enough in all times and countries. All the varieties of cynicism, which would afford material for a long

chapter on the follies of mankind, were contained in germ in the doctrine of Antisthenes.

Socrates already blushed for this philosophic tatterdemalion. "I see your vanity," he said, "through the rents in your cloak. Diogenes would have disgusted him; Diogenes who almost succeeded in astonishing Antisthenes himself.

This famous cynic (414-324) is said to have begun life as a coiners or falsifier of money. Expelled from his native town of Sinope, an outcast, from society, he wandered along the highway eating on roots and herbs. Rejected by mankind, he resolved to learn how to live like an animal, in a state of nature. To what master could he apply, if not to Antisthenes? This sage, embittered at the loss of his pupils, had shut up school, and received him with blows. But the determination and effrontery of the new arrival got the better of his repugnance; and the caustic spirit, the fluent and brilliant speech of Diogenes soon rallied the crowd round the old "snarling dog" of the Cynosarges.

Even more than his master, Diogenes reduced all philosophy to a code of morals. He at any rate retrenched metaphysics and dialectic subtleties, resuming the whole problem of life in two words: A sound mind and body; gymnastics and virtue. The maxim was well enough, could hardly be gainsaid, and was easily remembered; but it has no value, except in the application that may be made of it.

The life of Diogenes is more interesting than his teaching. But his eccentricities, his lantern, his tub, his porringer, his cloak adhering to his body like a second skin, his embracing of statues, and tumblings in the snow or burning sand, belong less to philosophy than to a collection of anecdotes. Vain and crafty, he well knew that in assuming the part of a churlish lout he secured impunity for the sallies of his pride. He could cry out to Alexander: "Do not stand between me and the sun." And when a certain tyrant asked him which was the finest bronze, he could boldly reply: "That of the statues of Harmodius and Aristogiton. In all this he was perfectly safe; for no despot, however nettled, would have thought it worth his while to meddle with one of the

living curiosities of Greece. Nor did he spare men or nations any more than lawyers and princes. When sold as a slave, and asked what he could do: "Rule free men," he replied, and began to cry out: "Who wants a master? who has need of a master?" The Greeks he called "filth"; and observing two wretches hanging from one branch, he remarked: "Would to the gods all the trees of the forests bore like fruits!" Seeing the superstitious crowding round the augurs and soothsayers: "Man," he said, "is the most stupid of all animals." Asked to decide between two lawyers, he said, like La Fontaine's monkey: "You claim what has not been taken from you; you have taken what is claimed of you." He died in his ninetieth year, wrapped in his cloak and stretched on the ground, like an old worn-out dog. Nevertheless he has his importance, and it must be confessed he deserved it. The flashes of wit and good sense often survive longer than genius and real wisdom.

While the effeminacy of Aristippus and the coarseness of Antisthenes were modifying and detracting from the sound moral system of Socrates, his empty metaphysics received from Plato an ingenious development and a marvellous expansion. The reason was because Plato introduced into them the whole of Heraclitus, Pythagoras, and Parmenides combined.

Aristocles—for Plato, "the broad-shouldered," was merely a nickname, invented by Socrates—was born about 430, either in Athens or the island of Ægina. Son of Ariston and Parectonia, he was allied through his father with the race of Codrus, through his mother with a brother of Solon. His first master was Cratylus, a disciple of Heraclitus. But when, about the year 417, he attached himself to Socrates, he must have frequented all the schools represented in Athens; his works showing a perfect acquaintance with the contemporary sophists, the great Abderite Protagoras, and the Eleatic sceptics Gorgias, Callicles, Euthydemus, Thrasymachus, and Critias. Even amongst the associates of Socrates he met Euclid of Megara, representing Parmenides and Simmias, who, through Philolaus proceeded from the school of Pythagoras.

In his youth he had devoted himself to poetry, and had composed

some tragedies, which he burnt when finally induced by Socrates give himself up to philosophy. After the death of the master, and the consequent dispersion of the school, Plato withdrew to Megara where he resided with Euclid and Stilpo. We find him some years later on (389) in Italy, associating with the Pythagoreans in Sicily at the court of Dionysius the Elder, then at Cyrene, studying mathematics under Theodorus the atheist. Nor was this the only advantage for which he was indebted to the successors of his great disciple Aristippus; for, when sold as a slave by Dionysius the Elder, he was redeemed by Anniceris. According to a probable tradition, he visited, not India and the East, but Egypt, where he picked up some notions of astronomy from the mouth of the priests. In 380 he is settled at Athens, or rather at the neighbouring groves of Academus, where he founded the Academy. But his peregrinations were not yet at an end. He again made three or four visits to Sicily, where he formed a close friendship with Dionysius the Younger. His fame was now spread throughout Hellas; many states asked him to frame their laws and King Archelaus invited him to Macedonia. He died while writing, in his eighty-second or third year, 347 B.C.

The unanimous admiration of the Greeks awarded him the well-known epithet of the Divine; nor would it be becoming on the part of any modern critic to refuse recognition to the literary excellence of his writings, and the charm of his style—a perfect model of Attic diction. On this point the verdict of the ancients must be accepted without question. They have heaped lavish praise on his sprightly humour, his eloquence, his wit, his lofty conceptions, in respect of which the Athenians could not be deceived. Nor are we here concerned with the authenticity, more or less questioned in England and Germany, of the majority of the dialogues ascribed to him; still less with the chronological order in which attempts have been made to arrange them. The value of conjectures of learning and literary criticism must not be allowed here to trespass on the exposition of philosophic systems. Nor are we called upon to begin over again a minute study that has been made a hundred times. It will suffice for our present purpose here

to sum up the received and generally accepted opinions, while taking as our guide some decided partisan of this most fortunate and daring genius. Great difficulty has been experienced in the attempt to reduce to a definite system the ideas scattered through twenty or thirty dialogues written at various dates, under diverse inspirations, and far too frequently contradicting each other. Several comprise a complete and independent system, others a crowd of hypotheses or poetic fictions, from all which it is evident that order and clearness were not conspicuous among the merits of Plato. M. Paul Janet confesses that his method is extremely vague, its uncertainty being intensified by the very form of the dialogue. It has recourse at once to all logical processes, to all the devices of the intellect, to induction, deduction, example, comparison, analogy, hypothesis—varied resources interdicted to no method of research. But what use is made of them by Plato's method? On what object does it concentrate all the mental faculties? What is its starting-point?

It is at the outset marked by a preliminary negative character—the neglect of all scientific observation, of all objective experience. It starts from man, not in order to study the surrounding realities, but to reconstruct the universe in accordance with the ultimate abstractions elaborated by human reason. Subjectivity is its principle, metaphysics are its domain, its centre, its element, its beginning and its end. It is the Socratic method, as already expounded. Hence it becomes easy to understand its barrenness at the dawn and close of its career; and how, starting from reality, it arrives at nothing but entity. Let us follow it in its delusive path.

Its first care is to upset, by irony and dialectics, the conclusions of opposing systems, thus leading the mind to doubt and confession of its ignorance. This critical, and in fact indispensable, part of his method occupies the largest share in the work of Plato. Nevertheless man knows and asserts. Whence proceeds his assertion? What steps in knowledge lead him to certainty? This is what division (*διαίρεσις*) and definition (*ὁρισμός*) have to determine. In knowledge we have four degrees: (1) Conjecture (*εἰσέτιμα*),

by which must here be understood the sensuous impressions; (2) Faith (*πίστις*), resulting from these impressions; (3) Ratiocination (*διάνοια*), which deduces the consequences from the principles; (4) Reason (*νόησις*), which perceives the principles themselves. The first two degrees constitute opinion, or rather semblance (*δόξα*); the last two, scientific knowledge (*ἐπιστήμη*), sufficient for truth and certainty.

Nothing can be more vague than an analysis of this sort, nothing more frail than such an edifice. Observe first of all that reason and ratiocination are intimately associated in the inverse order of the Platonic series. Since ratiocination deduces the consequences, it is logically posterior to reason, which alone discovers the principles; unless, indeed, these principles of reason are the same thing as these consequences of ratiocination. Here we have a vicious circle. But if reason proceeds from ratiocination, then the latter has nothing but opinion to build upon. Faith and conjecture become its true foundation, and certainty is seen to be in the long run based on appearance, which, true for us, cannot be so for Plato.

Hence, not to be compelled to acknowledge that experience—sensuous impressions—supplies to reason the principles whence ratiocination deduces its consequences, Plato is obliged to assume that reason pre-exists before *opinion*, that it discerns through *conjecture* and *faith*, and then by reminiscence (*ἀνάμνησις*), a sort of second-sight, distinguishes the traces of truth, “which are met in the objects of opinion;” that is to say, in the *essence* of things—their self-existence. Here we are still in a vicious circle, since ratiocination and reason would not exist without *conjecture* and *faith*. It is obvious that, if reason is to ratiocination what faith is to conjecture, it has no more authority than faith, whence ratiocination proceeds, that it is no more the criterion of truth than is conjecture. The Platonic logic ends in nothing, and contains in germ the sceptical *probabilism* of the Neo-Academicians.

The defect of the method we have endeavoured to summarise resides no less in its incoherence than in its being subordinate to an opinion—a foregone belief. Hence, unlike the experimental

method, it is not a disinterested instrument of investigation. The problem apparently submitted to its consideration is decided beforehand—still the vicious circle, from which there is no escape.

In fact, of all the schools through which he passed, Plato retained two contrary and irreducible principles, which Socrates taught him how to reconcile by subordinating the one to the other: the matter of Democritus, the immaterial absolute of Parmenides, the multiple in motion of Heraclitus, and the immutable unity of Pythagoras, corresponding to the objective and intellectual worlds represented in man by the body and the soul. His whole doctrine rests on a dualism, in which the *indefinite* (*ἀόριστος*) is mingled with *the end* or *the final* (*τέλος*), which regulates and determines it; in which motion, the multiple, the body is governed and swayed, not without a struggle, by the fixed, the one, the mind contained within it. "God has begotten the universe from all eternity; and in its production he has followed the idea, or the perfect type, of all possible things as existing in himself. Matter was before the universe, and is its mother, as god is its father. Thus the universe is the thing begotten, god is the begetting principle, and matter is the substance in which the universe is begotten. Thus mind and necessity are the efficient cause of the universe; for the mind is nothing else but God, and necessity is one and the same thing as matter" ("Timæus"). This point settled, method becomes a very secondary thing, its province henceforth being simply to supply arguments for a thesis—a foregone conclusion. What Plato calls science is nothing but a first intuition, to which method is subordinated. And who will fail to recognise in this intuition the above-mentioned *ἀνάμνησις*, or *remembrance*, that superfluous expedient suggested by the belief in the eternity of souls, in *metempsychosis*?

Placed at the imaginary confluence of two irreconcilable conceptions, Plato becomes swallowed up in their waters. He pretends to recognise the proportions regulating the mixture of two streams; but, in spite of the boldness of his imagination, he is unable to get the better of difficulties more delusive even than entangled. When, in the "Sophist," he establishes against

Parmenides that the Absolute Being is an abstraction equivalent to nothing, he in vain endeavours to prove against Heraclitus that the absolute, indefinite motion is also equivalent to the same nothing; and all the time he abandons neither the Absolute Being nor the indefinite motion, neither the spirit nor the substance. Notwithstanding his very decided idealistic tendencies, he is neither able nor willing to suppress the conceptions of extent, plasticity—the inferior principle capable of assuming all forms. Yet this matter, which ought to obey, is a great trouble, an intolerable burden, clinging to the mind like the tunic of Nessus—a poisoned vestment, entangling, blinding, and tormenting it.

The psychology, metaphysics, and ethics of Plato present the same contradictions as his method.

Man is constituted of a soul united to a body; and although the latter often proves a rebellious servant, the former may still be defined as τὸ χρώμενον σώματι, that which makes use of the body. By what accident has this distinct, immaterial, divine principle entered into the multiple, the changeable, the mortal? Through the action of a superior will, which wishes to try it, or make it expiate faults committed in a previous existence. The soul, the direct and most perfect creation of God, comprises two elements, the *self* and the *other*; “the *self* being something divine, and the *other* partaking of the divisible and bodily nature,” combined in Pythagorean proportions. The soul bears with it life and motion, is one and essentially simple. Nevertheless, in the “*Timæus*,” Plato seems to admit an immortal soul situated in the brain, and two mortal souls in the breast and the stomach, one above the other, below the diaphragm. In the “*Republic*” the three souls cease to be anything more than three powers of the same principle: νοῦς, the intelligence, or reason, governing and defending; θυμός, courage, or spirit, the passions and affections, usually on the side of reason; ἐπιθυμητικόν, appetite or desire, a blind and rebellious force, regulated with difficulty by reason and courage. Observe that reason, the immortal principle, is not *born* in the child, and that it is preceded by courage, and especially by appetite. Hence it begins as a simple virtuality, a prey to disease and premature death.

What could be more superficial and inconsequent than such an analysis?

The soul further involves an æsthetic and moral element: *ἔρως*, love, source of enthusiasm and frenzy, which one might feel disposed to place in the breast, with courage and the passions. But Plato admits two loves: one, the inseparable companion of reason, doubtless in the head; the other, sensuous and gross, obviously banished, with appetite, to the inferior regions. Love, which, like reason, is awakened by reminiscence, whenever traces of the divine beauty are revealed in nature; love, according to the "Phædrus," is a generous steed, guided and withdrawn from the temptations of the appetite by reason. A classic comparison thus may be, a rich and eloquent passage, but resembling a brilliant commonplace more than a carefully thought-out theory.

It has been seen that truth and knowledge are attained by reason alone, reason, the superior faculty and divine essence of the soul, which is man himself. Hence it follows that truth is purely rational, intellectual. But to avoid falling into the pure Eleatic doctrine, Plato admits that truth is exterior to, or independent of, man, that it is discovered in appearances or phenomena, by reminiscence, which here plays the part of abstraction. In fact, for him truth is the simplest and most general element of things, and this simple element becomes a permanent and distinctive quality, a product of abstraction transformed to an essence, to a category, a type, a virtual form, an entity, by metaphysical illusion. Thus that which is a mere relation between phenomena and the human sensuous perceptions or intelligence, with no actual existence, beauty, equality, goodness, swift and slow motion, health, life, species, becomes the fundamental reality; the relative becomes absolute. The various manners of being distinguished by our senses become *self-subsisting beings*—self-subsisting ox, man, bed—essences distinct from the aggregate of qualities grouped round about them, yet constituting these very essences. It is this logomachy, this aberration, as much admired as it has been discussed for the last two thousand three hundred years, that constitutes the Platonic theory of ideas.

The reader is left to make what he can of the subjoined *résumé*, which we take from Paul Janet's "Dictionnaire des Sciences Philosophiques":

The Platonic ideas are by no means simple conceptions of the mind, although forming the true principles of science and intelligence. They are the very essences of things, all that is real, eternal, universal in them. But, for the very reason that they are eternal and absolute, they can reside in things only by a *participation difficult to understand*, but without becoming altogether absorbed in them. They are distinct from things, and exist in themselves, held together by certain relations, co-ordinated according to their degrees of perfection. They form a world apart, which is to the visible world what reason is to opinion. But the world of ideas is not . . . an aggregate of different and individual substances. At bottom the ideas are not distinguished one from the other by their substance. Their common substance, that which imparts their essence to all of them, is the idea of good. But what is this idea of good? It is God himself, with whom alone can be associated the attributes of the idea of good. It is at the head of all intelligible things, it rests on itself alone, is self-sufficient, and not merely subjective (*ἀνυπόθετον, ἑκόνον*), the principle of truth and of being. The idea of good, the intelligible sun (beauty being the splendour of truth), is nothing else than the absolute being spoken of in "The Sophist," to whom, says Plato, we cannot deny life, motion, sublime and holy intelligence. The idea of good being God himself, the other ideas associated with it as with a common substance are the elements determining the divine existence, the things which make of God a veritable God so far as he is with them.

But let us proceed: It may be asked, what becomes of hydrogen, carbon, iron, sulphur? If Plato could not know these things by their name, he should at least have taken account of the aggregates that they compose. What becomes of the universe? Here Plato is neither above nor beyond, he simply stands apart. But metaphysics stop at nothing, and the universe is evolved from the theory of ideas, from the essence and the attributes of God. God, either by himself, or through the intermediate gods admitted by the *Timæus*, has formed the world on an absolute, eternal type, inimitable in its supreme perfection, according to the principle of good. The world is an outcome of his goodness, and thus everything is explained by the doctrine of final causes. But there is still the extended and ponderable substance, "divisible and corrupt nature." This Plato has more than once endeavoured to reduce to

a negative principle, to a sort of void or space, the non-existent, τὸ μὴ εἶναι, the limit and difference of things. But matter was too stubborn for him, and he therefore allowed it an existence ruled by necessity, according to circumstances associating it with, or opposing it to, the self-existing beings guided by intelligence: "It acted in concert with the organising principle in the formation of the world; it was in a sense the mother, while God was the father, and the world the son. Such is the Platonic trinity," analogous to the Chaldaean, Phœnician, and Egyptian triads.

Here we see the dualism of Plato betraying itself. However great be his ideal god, he is still limited by the *other*, by matter. He becomes an artifex, an architect operating on materials which he has not created, which he cannot annihilate.

Ethics are an apparent corollary of metaphysics, being the application to human conduct of the theory of the absolute good and beautiful. All actions should be regulated with a view to the good and beautiful, which bring the soul near to Divinity. Consequently the rules of life must be formulated by reason alone, which directly discerns the good and the beautiful. Such a theory differs little from the ethics taught, not only by all the mystic or rationalistic schools, but also by experimental science. How, then, account for the same end being clearly seen by the greater part of philosophers? Who amongst them are inconsistent? Those only who regard ethics as the logical conclusion of a system. Being a human and social affair, based exclusively on the interests of mankind, ethics are in principle independent of all general conceptions; they have no other *raison d'être*, no other foundation than the mutual relations of men; they are the complement of psychology. This is why they are found to be uniform under like social conditions.

It is still owing to the same vicious circle that, in the Platonic system, morals are made to depend upon metaphysics. The order is first of all reversed, for it was morals that gave rise to the metaphysics and theodicy of Plato. The absolute good, the idea of God, are but illegitimate generalisations of the relative and human good, personified and detached from its conditions of existence.

Physical, moral, intellectual good—the inseparable object of the living being—has no reality, except by comparison with evil, and all the efforts of mankind are aimed at avoiding the one and acquiring the other. Hence the better, the excellent, the greatest possible good, are ever present to the human thought, and remain everywhere the true motives of all actions, of all morals, whether individual or social. It is not difficult to understand how anthropomorphism has raised them to the absolute, making them the pivot of all things, the supreme final cause, the fundamental attribute of the Deity. Once established in the metaphysical world, good becomes the supreme, infallible, universal law of human actions, which nevertheless first suggested its conception. Thus it is that ethics, the origin of metaphysics, seem to be an emanation from them. But in this philosophers alone are at fault. Man does not act according to metaphysical principles. His conduct is regulated, his desire for the good, the better, the beautiful, is inspired, in the first instance by instinct, and then by the thoughtful study of immediate and more remote, of individual and social interests.

Still metaphysics in their turn react on the real world by their teaching and habit of thought, influencing the theory and practice of morals whence they originated. At times they are sufficiently coincident with the human actions generalised by experience; at others they oppose and stultify them by imposing on them the results of individual reveries, or else obsolete formulas, no longer compatible with a more advanced social and scientific state. This negative merit and these two real defects of metaphysical morals are naturally found in those of Plato. Sound and beautiful when it confirms experience—to which, however, it adds no superior efficacy—his system becomes chimerical and injurious when departing from that standard. We shall consider it under both of these aspects in their turn. •

Virtue is the science of the good. There are three principal virtues: prudence, corresponding to reason; courage, answering to elevated passion; temperance, that regulates the appetites. The conjunction of these three virtues constitutes justice. Prudence, courage, temperance, justice, or the four cardinal virtues, constitute

virtue. Happiness consists in the relation of the soul to justice and order, which is its application. "It is better, or even, more advantageous, to suffer than to commit a wrong." Such is the solid portion of Plato's moral system.

But when, isolating justice from the conditions suggesting its conception, he extends it to the universe, concentrating it in an abstract, pre-existent principle, whence flow all human laws and institutions, he deprives it of all certainty and reality. By transforming it after his particular ideal he disfigures it; and, when returning from the metaphysical heaven amongst mortals he brings it back to the earth, mortals recognise it no longer. Hence the aberrations of his political system.

Under the pretext of order he establishes three castes: labourers and craftsmen, whose virtue is temperance, that is to say, obedience; soldiers, whose virtue is courage, whose duty it is to fight the enemy, and especially *to stifle sedition by strong and gentle means*; lastly the magistrates, philosophers in whom resides justice, and to whom belongs the supreme government. In this fanciful organisation, so endeared to all reactionary movements, we seem to detect the aristocratic bias of the descendant of Codrus, the hatred of democracy intensified by the sight of all the miseries of Athenian society in the fifth and fourth centuries.

Under the pretext of harmony and unity Plato suppresses personal property and the family—principles, for him, of division and discord. Hence property belongs to the State, women and children are common. To this we are brought by the neglect of experience, by the metaphysical contempt for the natural conditions of the human individual and society.

It is true that in "The Laws," if this dialogue is genuine, Plato detracts considerably from the stringency of the ridiculous conceptions developed in "The Republic," adapting them more to the realities of life. While still reserving abstract property for the State, he tolerates personal property, and organises officers appointed by copyholders, elective tribunals, juries—three degrees of jurisdiction. He admits a vague appeal to the people, and equality before the law, with a more rigorous criminal code in the case of

the rich and powerful. He also enunciates just sentiments on the civilizing influence of education and the corrective efficacy of punishment regulated by justice rather than by vengeance. His *Sophronisteria* are the prototype of our penal settlements and penitentiaries. But, in spite of real improvements imposed on his theory by an approximate experience, his somewhat rationalistic constitution is nothing but a sort of anticipated "Orleanism"—a petty conclusion from such lofty moral premises.

Plato's æsthetics are a corollary of his ethics. The Beautiful being for him identical with the Good and the True, the aim of Art is the expression of the Good and the True by the Beautiful. The beauty which has not truth and perfection for its substance is nothing but an empty vestment, false and to be condemned. Art, for art's sake, has no claim to a place in the State; and poetic fictions, even though the work of Homer and Hesiod, are banished from the republic. For the author of so many fictions this seems a somewhat unreasonable severity, unless it be an affectation of eccentricity, a hyperbole not to be taken too literally. To this poet proscribing poetry it might be retorted that poetic fictions are neither dangerous nor opposed to truth and goodness, except when taken by the imagination for realities. But the true weakness and fundamental error of the Platonic theory consists in its confusion of the Good with the True, of the True with the Beautiful. If the Good and the Beautiful, although belonging to different classes of impressions and ideas, are yet two characters of the same order; they are connected with the True by no conceivable kind of relation. The True admits of no modification; it either is or is not. If the first, that is enough; and it remains indifferent alike to beauty and to ugliness, to evil as much as to good. But in the second part of this work we shall have occasion to expound the extremely complex elements of æsthetics, and to show that, although capable of meritorious application, the Platonic theory, while aiming at unity, removes the leading quality of art, dear though it was to Socrates—the expression, the personal interpretation of the innumerable aspects of physical, intellectual, or moral reality.

The development of the Platonic conception may be thus summed up : dialectics refuting each by means of the other, the materialistic and idealistic conceptions ; an extremely defective psychology, void of all knowledge, or even of all suspicion of the human organism ; a logic far from precise and too ambitious, claiming to subject the universe to ratiocination, and to impose on it the conditions and faculties of man ; ethics of an equally summary character, partly just and sound, because, in spite of themselves, based on acquired experience and on the social relations ; metaphysics, suggested by this psychology and by these ethics, but which in their turn react upon them, vitiating them and falsifying their political and æsthetic application ; a system of physics subordinated to metaphysics, in which the substance is replaced by virtuality, by type and idea. In a word, a subjective conception, which nevertheless does not dare to suppress the universe, but which fails to understand it—a chimerical dualism, which teaches nothing regarding man and the world.

The teaching of Plato, by which we are still hampered, exercised its fatal influence on the encyclopædic mind of Aristotle. In spite of his fortunate rebellions, notwithstanding his remarkable tendencies towards the experimental method, this colossal genius was unable to shake off the yoke of logic and anthropomorphism. But he, at any rate, imparted to the rationalistic theories a severity and a precision, enabling us to recognise all their hollowness whenever the attempt is made to apply them to the conception of the universe.

But, before undertaking an account of the works and doctrines of the greatest of the dualists and reconcilers of mind and matter, we must devote a few words to the direct successors of Plato.

The theories of Plato were so fluctuating, reflecting each in its turn so many different doctrines, that his nearest disciples returned to the more ancient philosophers, or else borrowed from contemporary systems principles unknown to their master. Thus Spencippus, his nephew and successor at the Academy in 349, inclined towards Pythagoras, Parmenides, and Euclid for his metaphysics, towards Crates the Cynic for his ethics. It cannot be

asserted that he did not incline occasionally even towards empiricism. But his numerous works, purchased for three talents by Aristotle, who refuted them, have all perished. Hence it is now difficult to explain how he reconciled the Supreme Being, destitute alike of all moral and intellectual qualities, with the scientific authority of the senses; or his ultra-stoical axiom: "Pleasure is an evil" with his definition of happiness: "Happiness is a certain perfect state in natural things; happiness is the end of virtue." His god was the god of pantheism, something animate and living, which moves and governs matter. But what, asked Aristotle, became of the self-existing one, indifferent, without qualities, the pure nothing? It is probable that, like Plato, Speusippus often modified his views.

His successor, Xenocrates (339), another disciple of Plato, also reverted to Pythagoras, to whom he was naturally directed by the "Timæus," with its arithmetical and geometrical fancies. He yielded fully to the chimera of numbers, of the monad and dyad, equilateral, scalene and isosceles triangles, formulas of things mortal and immortal, divine, imperfect, and intermediate. This last order, issue of the isosceles triangle, was composed of genii, of immaterial forces, of metaphysical entities. The series of numbers being the expression of the relation of beings (?), Xenocrates admitted an uninterrupted progression between the sensuous and intellectual world. It is but another kind of pantheism, in which unity—active, however, and not neutral, as with Parmenides and Speusippus—reveals itself through reason and instinct. The soul of the world circulating in all things—such is the doctrine we shall everywhere meet midway between metaphysics and materialism. The ethics of Xenocrates seem to have been more sensible than his physics and his theodicy. He placed happiness in virtue, and virtue in the progressive and complete development of the faculties; thus setting practice above theory. From him this maxim was borrowed by Zeno.

Why disturb in their obscure repose either Polemon—successor of Xenocrates, and also master of Zeno, who abandoned the dialectics and subtleties of Plato—or Crates the Athenian, or Crantor

of Soli, commentator of Plato? Arcesilaus, who shed some glory on the school while profoundly modifying its teaching, was otherwise rather a disciple of Pyrrho. This founder of the Middle Academy fancied he professed the Socratic and Platonic doubt, but really taught scepticism in logic and metaphysics; probabilism in ethics, based on the verisimilitude and agreement of actions with their end, which is happiness. An able disputant, his principal glory consisted in entangling in the meshes of his captious dialectics the logic, subtle as it was rudimentary, of the honest Zeno.

The mention of these lesser lights has brought us to the first years of the third century. They should perhaps be made to conclude with an account of Pyrrhonism, which flourished at this epoch. But Aristotle, who claims our attention as the pupil and opponent of Plato, was already dead (322) before Pyrrho (born 340) had finished his preliminary studies. Pyrrho's is a name which challenges something more than a passing reference. His so-called absolute scepticism, his *abstention*, requires to be understood: besides which, the peripatetic rationalism does not escape his comprehensive and cogent criticism. Hence we may here safely yield to the exigences of chronology, which have already prevented us from connecting Pyrrho with the Abderite school, whence he proceeded, like his masters Anaxarchus and Protagoras.

Aristotle was born in 384, at Stagira (Stavros), a Macedonian seaport, founded by the citizens of Chalcis, Eubœa, on the upper shore of the peninsula of Mount Athos, near its junction with the mainland. His father, Nicomachus, a physician and favourite of the Macedonian king Amyntas II. (393-369), belonged to the family or corporation of the Asclepiades, or descendants of Asclepius (Esculapius). Left an orphan in his seventeenth year, and entrusted to a tutor for whom he ever afterwards retained a warm feeling of gratitude, and whose son subsequently became his own pupil and son-in-law, Aristotle came to finish his education in Athens just as Plato was setting out for Sicily. Hence it must have been about three years after this event, or about his twentieth year, that he began to attend the

lectures of the master whose doctrines he was destined to overthrow.

For nearly twenty years he associated with Plato, who had from the very first recognised his natural genius. His relations with his fellow-pupils Speusippus and Xenocrates, and his real or apocryphal contentions with the aged Isocrates, need not detain us. All that can be positively asserted regarding this period of his life is that, before the death of Plato, in 348, he taught eloquence and belles-lettres with distinction; and there is reason to believe that his "Rhetoric" and "Poetics" were his first works. He was absent from Athens when Speusippus succeeded to the Academy, on the death of Plato. Possibly offended at what he regarded as an usurpation, and looked on with suspicion as a Macedonian, Aristotle, in company with Xenocrates, withdrew to the old friend of his tutor Proxenes, Hermias tyrant of Atarneus, in Mysia. The tragic death of Hermias, who was strangled by Artaxerxes, inspired the composition of a very fine paean to Virtue, preserved by Athenæus and Diogenes Laertius. Escaping with Pythias, daughter of Hermias, he married her, and lived for about two years at Mitylene, in the island of Lesbos. In the year 343 Philip of Macedonia entrusted to him the education of his son Alexander, then in his thirteenth year.

For four years—spent partly at Pella, in the palace of Nymphæon; partly at Stagira, whose ruins he had repaired and whose institutions he had restored—Aristotle instructed his fiery but talented pupil in ethics, politics, eloquence, and poetry; besides natural history, physics, medicine, music, and even metaphysics; also revising and annotating the "Iliad" for his special use. This is the famous edition kept by Alexander under his pillow, the loss of which has been deplored by so many learned writers. Although Alexander was summoned in his seventeenth year to share in the cares of government, Aristotle did not leave him till the Asiatic expedition (335). From preceptor he had become adviser and friend, as far as was possible, of that headstrong young prince.

Settling at Athens, in a building called the *Lycæum*, here he at last opened his school of philosophy. For thirteen consecutive

years he here taught the whole curriculum of human knowledge, walking up and down with his pupils, whence his followers came to be called Peripatetics, from περιπατέω, to walk about. The school, which was much frequented, received from him a regular government and regulations, administered by an archon, who was changed every ten days.

Several times in the year all the members of the Lyceum assembled at an entertainment, on which occasions "a becoming dress was indispensable." Two daily conferences, or walks, corresponded to two distinct degrees of instruction: That of the morning—devoted to the higher branches and more abstruse sciences, in which his select disciples listened to the discourses and received the unreserved instruction of the master—constituted the so-called *esoterics*, or ἀκροαματικοὶ λόγοι. At the evening, or more general conference, the philosopher discoursed in a less methodic manner on more summary and general subjects. These were the *exoterics*—ἐξωτερικοὶ, ἐγκύκλιοι λόγοι, or λόγοι ἐν κοίτῳ. But all attempts have proved futile to introduce this purely practical division into the works of Aristotle.

If, as is believed, the greater part of the works that have reached us under the name of Aristotle, and which probably form no more than a third of his writings, were composed during these thirteen years of active teaching, it would be difficult to find elsewhere a similar instance of such prodigious labour. Had he merely limited himself to reducing to more or less rigorous systems the methods of logic and the hypotheses of metaphysics, and to wisely formulating the precepts of morals and politics, he would have at least found all the elements of his doctrine in his precursors, in his master, or in his own contemplations; for the field of subjective studies is necessarily restricted. But it is the chief glory of Aristotle, in which he remains without a rival, that he was an observer, an experimentalist, a true naturalist. He seldom remained satisfied with reports, visionary theories, "sublime" puerilities. When he wished to compose a system of politics, he collected and collated upwards of a hundred and fifty constitutions. He studied meteors, colours, acoustics, botany, mechanics, lastly and above all zoology.

He wrote the history of animals after nature, classifying all the specimens of the fauna and flora sent to him from Asia by Alexander, collections which cost the conqueror several hundred thousand pounds.* A whole army of hunters were employed to procure the subjects on which Aristotle operated.

But to conclude the history of his life. Alexander is known to have been attended by a whole troupe of philosophers and artists, amongst them, Anaxarchus, Pyrrho, and Callisthenes, nephew of Aristotle. He involved the last named in a false charge of conspiracy, and caused him to be put to a cruel death. This was a shameful murder, which must have caused a great coolness in the relations between the disciple and his former master. Some went so far as to suspect that Aristotle was no stranger to the death of Alexander. But though sudden, the death of the conqueror was not due to poison. In any case, these conjectures, probably inspired by envy, are of no more consequence than the other fables circulated by the enemies of Aristotle. So little was he regarded as hostile to Alexander, that, even before the death of that prince, he was compelled to withdraw in all haste from the rage of the reactionists. Accused of impiety, under the frivolous pretext of having raised altars to his first wife and his friend Hermias, and not caring to expose his person to "a second outrage against philosophy," he escaped to Chalcis, in Eubœa. Here he died within a twelvemonth, in the year 322, naming his friend king Antipater as his executor, and bequeathing, as is said, his manuscripts to his disciple Theophrastus, with the express injunction that they were not to be made public.

It is related that, unable to understand the ebb and flow of the Euripus, he threw himself into its waters, crying out: "I have not been able to understand thee; take me, Euripus!" He was also said to have been poisoned, while others simply ascribed his death to a disorder of the stomach. The citizens of Stagira claimed his body and raised a temple to his honour.

Strabo relates that the writings of Aristotle remained in obscurity for two centuries, and in any case his immediate successors, Theophrastus, Strato, Lycon, and Demetrius do not seem to have

commented on or published his works. It was not till the time of Cicero that they were discovered in Rome, and made known by Andronicus of Rhodes, and there is accordingly some probability in the traditions regarding their strange disappearance reported by Strabo. From Theophrastus they would seem to have passed to a certain Neleus, of Scepsis in Troas, and from his heirs to Apellico, a rich Athenian bibliomaniac. Sylla brought them from Athens to Rome, where the heirs of his library sold them to Andronicus. Athenæus is the only authority for the statement that a copy had been deposited in the Alexandrian library. In any case, Cicero assures us that Aristotle was known to very few readers "even amongst philosophers." Thus, while the doctrines of Plato, Zeno, Epicurus were the subject of general controversy, the Stagirite remained, so to say, on the shelves, though destined to become the guiding spirit of logic and metaphysics for a period of fifteen hundred years.

The question of authenticity would not here concern us unless it affected the greater part of the works that have reached us under the name of Aristotle. It arose too late to be satisfactorily solved. The numerous fragments preserved in various writers and which are not found in the extant works, are rather suggestive of actual losses than of interpolations, however possible these also may be. We may add that a large number of later quotations are taken textually from the "Organon," "Physics," and "Metaphysics," treatises which have survived, and the authenticity of which was certainly admitted by the ancient critics. Still there would be nothing surprising in the fact that worm-eaten parchments, which are said to have remained buried in the ground for one hundred and sixty years, had been re-touched and altered in many places, or that spurious works had been included in a collection which had changed hands so frequently.

The list of Aristotle's writings is perhaps the greatest eulogium of this laborious genius, as well as the most complete table of the studies included in the field of philosophy amongst the ancients, such as it was understood by Democritus and his school. For in spite of all his metaphysical digressions, Aristotle is still above

all the successor of the great Ionians, one of the creators of experimental science.

The great difficulty is to classify in some methodical order such vast treasures, with a due regard to their real worth; for they are very far from possessing the same historic or intrinsic importance. Those which secured the empire of Aristotle over mediæval christianity and modern rationalism are for objective philosophy the least valuable of all, while amongst the others there are very few that have escaped the taint of metaphysics. In saying this we do not of course confound the errors almost inseparable from defective observation with subjective vagaries.

The following general scheme may be adopted: Physics and various sciences, Botany, Zoology, Physiology, Ethics and Politics, Logic, Rhetoric, Psychology, Metaphysics.

- I. PHYSICS, &c.—(1) *Treatise on Physics*, in eight books; (2) *On the Heaven* (περὶ οὐρανοῦ), in four books; (3) *Meteorology*, in four books; (4) *On the positions and local names of some Winds*, and *On the Universe* (περὶ κόσμου), to Alexander (apocryphal); (5) *On Colours*; (6) *On Acoustics*; (7) *Mechanical Problems*; (8) *On Indivisible Lines* (περὶ ἀτόμων γραμμῶν), i.e. concerning the indefinite divisibility of magnitudes; (9) *The Problems* (προβλήματα), in fifty-seven sections—a vast collection of questions in all departments of knowledge; also a little collection of *Surprising Phenomena* (Θαυμάσια ἀκούσματα), chiefly connected with natural history, in part, if not altogether, apocryphal.

II. BOTANY.—*Treatise on Plants* (apocryphal?).

- III. ZOOLOGY.—(1) *On Production and Destruction*, in two books; (2) *History of Animals*, in ten books, the last apocryphal; (3) *On the Parts of Animals*, in four books; (4) *On the Gait or Progression* (προσία) of Animals; (5) *On the Motion* (κίνησις) of Animals; (6) *On the Generation of Animals*, in five books.

IV. PHYSIOLOGY.—(1) *On Respiration*; (2) *On Sensation and Sensible objects*; (3) *On Memory and Recollection*; (4) *On*

Sleep and Waking; (5) *On Dreams and Divination by Sleep*; (6) *On the Longevity and Shortness of Life*; (7) *On Youth and Old Age*; (8) *On Life and Death*; (9) *On Physiognomy*.

V. ETHICS, or, as Aristotle wrote, THE PHILOSOPHY OF HUMAN THINGS.—(1) *Ethics to Nicomachus*, in ten books; (2) *On the Great Ethics* (ἠθικὰ μέγαρα), two books; (3) *Ethics to Eudemus*, in seven books, second and third being recensions ascribed to two disciples; (4) Fragment *On the Virtues and Vices*, extracts from a lost work.

VI. POLITICS.—(1) *Politics*, in eight books; (2) *Œconomics*, in two books, the second apocryphal; (3) Fragments of the collection of 171 constitutions. Heraclides of Pontus made an abridgment of this work, which was still extant in the twelfth century.

VII. LOGIC, or THE ORGANON, that is, "the Instrument of Science," titles which were not invented by Aristotle.—(1) *The Categories* (κατηγορίαι), or *Prædicamenta*; (2) *Hermeneutics* (περὶ ἑρμηνείας), or *Interpretation*, a treatise on the proposition, or rather, on the expression of thought by means of speech, an attempt at a philosophic system of grammar; (3) *On the Syllogism*, afterwards called *First Analytics* (ἀναλυτικά πρότερα), in two books, concerning the theory of conclusions; (4) *On Demonstration*, or *Apodeictic knowledge*, afterwards called the last, second, or *Great Analytics* (ἀναλυτικά ὑστερα, δεύτερα, or μέγαρα), in two books, the first on demonstrable knowledge, the second on the application of conclusions to proof; (5) *On Dialectics, or Topics*, that is, the logic of the probable, in eight books; (6) *Refutations of the Sophists*, concerning fallacies, &c. (περὶ σοφιστικῶν ἐλέγχων).

VIII. RHETORIC, Literary Criticism.—(1) *Art of Rhetoric*, in three books (*Rhetoric to Alexander*, apocryphal); (2) *Poetics*, a fragment.

IX. PSYCHOLOGY.—*Treatise on the Soul*, in three books.

X. METAPHYSICS.—(1) *Metaphysics* (the title, which is not

- Aristotle's, occurs for the first time in Plutarch, and is ascribed to Andronicus of Rhodes), in fourteen books, of
 * which the twelfth, if not others, is considered apocryphal;
 (2) Short treatise on *Melissus*, *Xenophanes*, and *Gorgias*.

This is not the classification adopted by the rationalists, who place at the head of the list, as preliminaries and as instrument (*ὄργανον*), the work on "Logic," that grammar of thought of which Aristotle was the ingenious inventor. The philosopher himself would have probably adopted the arrangement proposed in the fifth century by David the Armenian: Organic section; practical section; theoretical section. But on the one hand the "Logic" has not the universal function attributed to it; for, besides being a dangerous guide, it is but a very secondary instrument of knowledge outside of human affairs and the domain of science. On the other hand, the triple division omits altogether the "History of Animals," which is Aristotle's most solid title to our gratitude.

The reader will note that in our eight first Categories observation is predominant, in the ninth and tenth, logical fancy, or better, fanciful logic; here the metaphysician, there the naturalist and observer.

Space preventing us from keeping to the text of his writings, let us now endeavour briefly to sum up, in the various classes under which they are grouped, the discoveries, opinions, and lastly the thought—often somewhat obscure—of the Stagirite; taking first of all his conception of the real world, of animals, man, individual and social life; in the second place his conception of the metaphysical world and of the pretended laws governing reality.

The physics of the ancients are so rudimentary and conjectural that they can possess for us nothing more than a certain curiosity. Apart from some just or plausible notions occurring in those of Aristotle, and separating as far as possible his statements from all metaphysical theories, —a far from easy task in itself—his ideas on the outward world may be thus resumed:

There are four simple elements mutually interchangeable, that is

to say, whose particles are capable of being variously allied. There are two contraries—the earth, absolutely heavy, and fire, light by nature; two intermediates—air and water. The heavy is borne towards the centre, the light towards the heavens. Gravity and lightness are the motive causes of the elements, producing two rectilinear motions—a centripetal and a centrifugal. There are seven pairs of contrary qualities: cold and hot, both active; humid and dry, passive; heavy and light; hard and soft; viscous and arid; rough and gentle; gross and thin. This throws completely into the shade the *atomic figures*, with metaphysics superadded.

Fire is born of the hot and arid; air of the hot and humid; water of the humid and cold; earth of the cold and dry.

Earth, water, air are enveloped in the zone of fire where are suspended the stars—a condensed fire—cause of light and heat. By their friction they inflame the air.

In the first and second books on “The Heavens” must be sought the opinions of Aristotle and the ancients on the figure, position, motion, weight, and lightness of the stars.

In the “*Meteors*,” one of his most remarkable and learned works, he studies, with a multiplicity of examples, the phenomena of the air, the earth, and the waters; together with the effects of the combination of bodies—winds, thunder, lightning, exhalations, rainbow, parhelia, putrefaction. He gives a somewhat ingenious and detailed account of everything connected with watery meteors, rain, snow, hail, dew, and suggests an extremely clever explanation of the rainbow. The wind he defines as a current of air, pointing out that its direction depends on various and little-known causes; hence its general motion cannot be determined.

Above the starry firmament is the first heaven, the ether, spherical, animated by a circular motion, which it communicates to the whole world. It is the first motive power, unchangeable, eternal, without attributes.

Above it resides the motionless motor, without substance, formless, and acting only as a final cause, so that here we become involved in pure metaphysics.

Thus there are three essences: the supreme archetype, the

mutable and incorruptible ; the incorruptible but movable essence which reaches down to the lunar orbit, and which may be also named quintessence (fifth essence), if account be taken of the four heavy and light essences ; lastly, the movable and corrupt essence, which reaches from the moon down to the centre of the earth ("Treatise on the Heavens").

* The universe is a completed globe, unique, eternal, incapable of increase or diminution. The motions affecting it—general circular, particular circular, rectilineal, contrary—cause in the sublunary world the vicissitudes of generation and corruption, presiding over existence and life.

The basis of all existing things, of the four elements, of the ether itself, is matter—a sort of plastic paste, elaborated by nature into bodies, of which nature is herself the last term. For these bodies differ only in figure, quantity, motion, rest—contingent or accidental characters.

Matter is what may or may not be such or such a particular thing : the possible, the virtual ; that which is "neither *who*, nor *how great*, nor *what*, nor *anything of that by which being is determined*."

It is capable of two conditions—form and privation. Form, which alone determines matter, is the essence of being, the mute and constant aspiration, the accomplishment and the end, the *actuality*, or *entelechia* of matter, as opposed to its *δυνάμεις*, or potentiality. Apart from the first mover there exists no being without matter or form. Privation, a very obscure point, is either the condition of matter between a perishing form and one about to be born, or else in a given form the absence of any other form which matter might have equally well assumed. Potentiality, actuality, virtuality, such would seem to be the three terms summing up the universe.

Elsewhere Aristotle prefers four causes : the matter or the subject ; the form or aggregate of the essential qualities ; the motive cause ; the end or aim of the change. But the third may perhaps be identified with privation or virtuality, while the fourth is comprised in the form, or actuality. In a word, under all these

subtleties there is betrayed a thoroughly Ionic conception—substance, and its accidents. Here we have the whole secret of the *Categories*.

Motion plays a great part in the physics of Aristotle. It is motion, which, by generation, alteration, increment and decrease, translation, operates on substance, the quality, quantity, and nexus of things. Motion unites what is possible with what is about to become actual. It is "the actuality of the potential as far as it is potential." A strange jargon, doubtless! But Aristotle is clearer when he assigns as the cause, or rather the occasion of motion, the action and reaction of two active contraries—heat and cold. And yet he well knows, and elsewhere makes it evident, that heat and cold are nothing but sensations. In any case, they are mere general ideas—*universals*, without reality, conditions of being.

In the production of things Aristotle assigns a part to *nature*. But what does he understand by this term? Something extremely vague and ill defined.* Sometimes nature is crude matter, sometimes it is the realisation of matter by the assumption of form, or else the individual motive cause of each being, and elsewhere the aim and end of each individual being, whatever constitutes it what it is—a tree, horse, man. In a word, nature is nothing but a general term, a *universal*, endowed with mere logical existence—a way of speaking, shall we add, in order to say nothing?

The principle of all things is by no means one, as the Eleatic school supposed; nor is it the *homoiomeria* of Anaxagoras, nor the atoms of Democritus, nor the elements of Thales and his school, nor the "number" of Pythagoras, nor the ideas of Plato. Yet, in spite of this assertion, it would be easy to find in Aristotle's "Physics" nearly all the hypotheses of his predecessors—a supreme motionless motor, the absolute nothing, heavens incapsulated one within another, the four classic elements endowed with fourteen fundamental qualities, elements simple in themselves, but combined according to these qualities by diverse rectilinear and circular motions, a general substance, matter determined by form, which is the type, the essence of beings, in a word, quite enough to satisfy

Parmenides, Anaximander, Democritus, Anaxagoras, and Plato himself.

But Aristotle, as is obvious, and as we shall have more than one occasion to show, is fundamentally a materialist, a hair-splitting materialist, who exercises his ingenuity in concealing the real under the abstract—the incurable vice contracted by association with Plato.

It has been seen that every body is a *substance* (or potentiality), endowed with or deprived of a form, which form gives it actuality by the effect of *motion*, cause of generation and change, ever renewing things, and replacing the dead by the living, without adding anything to, or taking anything from the fundamental substance—the possible.

Reduced to these terms, the theory is fully justified by observation. In the presence of the realities themselves, living and vegetating, Aristotle departs somewhat from his apparent metaphysical severity, and becomes the disciple of genuine science. Richly provided with all the plants and animals of Asia, he describes them carefully, and classifies them according to their various relations and differences.

He observes that the several phases of life are represented by intelligence, sensibility, motion, nutrition, and reproduction. At the foot of the ladder are plants, which grow and reproduce themselves, but have no feeling. To them he allows the vegetative *soul*. Fire, with the other elements, contributes to their nourishment, whose object is reproduction, the sexes appearing, as a rule, united on the same stem.

Peculiar to the Animal Kingdom are feeling and locomotion; hence, to the vegetative he adds a sensitive soul, and one endowed with motive power. Like the plant, the animal springs from a germ, which has the animal life in potentiality only up to the time when it is separated from the mother and independently developed.

Each individual plant or animal is born of an individual plant or animal. It is increate, while genus and species are fixed and eternal.

Aristotle does not separate man from the animal order, but merely assigns to him a fourth soul—reason, which implies the other three, and which takes the direction of the various motive powers.

His masterpiece is the “History of Animals,” which to us is more precious than its appendices on the *Parts* and the *Generation* of animals, because it sets forth observed facts with a certain method, without losing itself much in the hypothetical search for causes. “The history of man, considered simply as an animal, is complete in his work; and of all the animals known to the ancients there is scarcely one, from the whale to the insect, whether moving on the land, or soaring in the air, or confined to the waters, that Aristotle does not tell us something of. Everything coming within the range of vision seems known to him, from the elephant that he dissects to the minute creature whose birth in the dust and corruption we detect with difficulty.”

In his first four books he describes in detail all the parts of the body of animals; in the three following he studies their birth, their reproduction, the entire course of their lives; the eighth treats of their nutriment, the ninth of their habits. It forms altogether a substantial work on comparative zoology, in which all the points of resemblance and all the discrepancies are supported by examples. If he treats of the human skull, he contrasts it with the cranium of other animals. If his theme is the human lungs, he tells us all that was known concerning those of other creatures, and mentions those who lack this organ. And so with reproduction, blood, &c., making man his point of comparison, grouping and accumulating facts around him, and never writing a superfluous word.

The series of his little treatises, called “*Parva Naturalia*,” on respiration, sensation, memory, the duration of life, forms a sketch of physiological psychology, many features of which recur in his work on “*The Soul*,” which, though perhaps chronologically ranking first, we shall relegate with his “*Metaphysics*” to the last place.

Aristotle studied the conditions and characters of animal life and of human activity. He is thus enabled to approach the question of the superior faculty, which he reserves exclusively for man—

reason, or rather ratiocination embodied in words, the instrument of certainty and the rule of actions.

Here he is at issue with Plato, who refers all certainty to the direct intuition of the type, the *idea*, the pretended ideal reality, refusing all authority to the bodily senses, which he regards as narrow apertures letting in a feeble light in a gloomy prison. But Aristotle is too much of an observer not to be a determined believer in sensation, which he recognises as the principle of all knowledge. Characteristic of him is the famous maxim which, though found nowhere in his writings, yet accurately describes his thought as read between the lines—the starting-point of his special teaching: *Nihil est in intellectu quod non prius fuerit in sensu*—nothing in the mind that was not first in the senses. He goes the length of saying that the loss of a sense would be the loss of a science: “no olfactory organ, no sense of smell,” and so on. The loss of all, and of touch, in which all are concentrated, would be the extinction of thought. Sensation, memory that fixes and accumulates its results, experience, the result of memory, all precede reason and are the conditions of all knowledge. Before sensation, the soul is the *tabula rasa*, on which nothing has yet been traced.

Still Aristotle is quite aware that sensation is nothing but a relation between the subject that perceives and the object that is perceived. He knows that it disappears with the subject, that it is fugitive, relative, doubtful, and that it may even be deceptive. It was on this account that Democritus and Protagoras, not to speak of Parmenides and Pyrrho, despaired of ever attaining the absolute, the real. In spite of themselves they sought for the being in itself, that chimera of all rationalism. Aristotle was a prey to this radical delusion. Not satisfied with relative certainty, that is, in relation to the subject, and with sensation controlled or checked by experience, he fancied he found in “reason” and in ratiocination a bridge wherewith to span the gulf separating the contingent from the necessary and the absolute. He ingeniously distinguishes between a passive reason born of experience, and an active, coming from without, from above, “through the portal”.

(*δύπαθον*)—but what portal unless that of the senses? He appeals to *demonstration*, a sort of proof obtained by a certain arrangement of words and of ideas corresponding to them. He failed to see, or he was reluctant to see, that demonstration is never anything more than the confirmation of a fact or of a law of experience, by a summary recapitulation of the elements already contained in the proposition. Demonstration adds nothing to the fact as formulated, but merely analyses it in detail. Logic proves nothing, but only explains, or at least may explain. Nevertheless its function is still important, and we shall see it usefully applied in the subjective field, in the conduct of life. But in the objective domain, in the knowledge of the material world it can never supplant the actual test of experience.

It was necessary to dwell at some length on the pretensions and the fundamental error of the Aristotelic logic, because its exclusive reign of two thousand years has fostered and aggravated in the human mind the development and the consequences of anthropomorphism, that most tenacious of all illusions. At the same time its very influence and its unrivalled celebrity at least showed the genius of its inventor, who has himself boasted of being the creator of the *syllogism*. If for Aristotle, as for every one else, logic is in the first instance the analysis of human reasoning, and then the *science*, the grammar of the formal laws of thought, it seems to be for him also the *art* that leads unerringly to truth, notwithstanding Barthélemy Saint-Hilaire's doubts on this point.

The object of logic being demonstration, which involves a series of propositions formulated in words, "The Organon" necessarily starts from the verbal elements, fixing their place in the proposition that translates or interprets the conception, and regulating the concatenation of such propositions, in order at last to reach demonstration. Four works are devoted to these four parts of logic: the *Categories*, *Interpretation* (*περί Ἑρμηνείας*), the treatise on the *Syllogism*, or *First Analytics*, the treatise on *Demonstration*, or *Last Analytics*.

The *Categories* are the general modes under which human thought considers and classifies beings and ideas. Out of these

convenient, but purely subjective commonplaces, scholastic philosophy developed the Universals, entities of the same type as the Platonic *ideas*. When he characterised them as *necessary*, Aristotle did not mean to divorce them from human thought; or to assign to them a separate existence, regarding them merely as classes suggested by a careful observation. Similar tables were drawn up by many philosophers before his time; and though he may have been unacquainted with the Hindu Kanada's six categories (substance, quality, action, the general, the particular, the relation), or with Gôtama's sixteen, regarded by Barthélemy Saint-Hilaire as simply dialectic or rhetorical, he himself mentions Pythagoras's ten *antinomies*: the finite and infinite, odd and even, unity and plurality, right and left, male and female, rest and motion, straight and curved, light and darkness, good and evil, the square and the trapeze. The so-called Categories of Archytas, however, are nothing but an Alexandrine counterfeit of Aristotle's system.

His Categories, ten in number, are: substance, quantity, relation, quality, place, time, situation, manner of being, action, passion; besides six supplementary categories: opposition, contrariety, possession, priority, simultaneousness, motion, easily reconcilable to one or other of the first ten. Observe that these modes of thought are not of the same order. Nine are determinations of the first, substance, being merely the subdivisions of a class, the sum of its attributes or accidental properties. Here, strictly speaking, there are but two categories: substance and accident. In any case several are secondary and derived; all are comprised in time and space; the situation, manner of being, action and passion in relation. Thus Aristotle's classification, like all others, is largely factitious.

Allowing that the Categories express the various aspects under which man may view things when endeavouring to define them, we shall possess in them the raw material, so to say, of the discourse—categories to which all words are referable. But these words assert and deny nothing, are neither true nor false, involving no judgment until they are united together in a general or particular declaratory proposition. Every proposition is formed of a

subject or substantive, and an attribute or predicate connected together by a nexus expressed or understood in the verb. The predicate is what is affirmed or denied of the subject, and the *Hermeneutics* of Aristotle are the interpretation and classification of propositions.

The categories and propositions are the elements of ratiocination, of which the syllogism is the form. The syllogism is composed of three propositions: the major, the minor, and the consequence or conclusion. The major and the minor are the premisses, and all three are so disposed that the first contains the second and the second the third. But this being so, the third is itself contained in the first, and the conclusion is established, at least verbally, for the premisses are nothing but affirmations or denials without proof, which experience alone could supply. It is impossible here to enter into the details of the three figures, of the four modes of the syllogism, of the fourteen conclusive and thirty-four non-conclusive combinations. All this intricate mechanism is taken to pieces and minutely examined in the *First Analytics*. But it may be asked whether this laborious work is as useful as it is ingenious? The syllogism, passing from the same to the same by means of the similar, may doubtless bring conviction to all who admit the premisses; but it neither teaches nor discovers, nor adds anything. Aristotle overstrains it when he defines it as "an enunciation in which, certain propositions being laid down, a third, *different* from them, is thence necessarily deduced, from the very fact alone that they have been so formulated."

The whole theory of the syllogism is based on the famous principle of contradiction, which Aristotle states in several ways: "Nothing can be and not be at the same time in the same subject and under the same relation; Affirmation and negation cannot be true at the same time of the same subject; The same subject cannot admit at the same time two contrary attributes." It will be seen later on that Kant has restricted the authority of this principle to the judgments which he calls *analytical*, in which the attribute is a simple consequence of the subject, and that he seeks in faith or experience alone the criterion of what he calls *synthetic* judgments.

Demonstration is a series of syllogisms, whence science is born. Here we have a most questionable statement, since from a series of syllogisms we can draw nothing but what is affirmed or already contained in them. Hence the syllogistic demonstration is merely an explanation without any assurance of certainty. Aristotle no doubt assumes that the demonstration starts from certain propositions, from axioms as evident as they are indemonstrable, proceeding not from the senses, but from the active reason—an abstract reason, whose essence is exterior and superior to men. Observer though he is, above all others, he yet looks to metaphysics as the source of certainty and science. He has recourse to what is called the *à priori*, as if the *à priori* did not always imply an *à posteriori*, which is experience. Induction must have preceded deduction. It is induction, reduced by Aristotle to the syllogism, that establishes those pretended principles and axioms whence proceeds deduction. He failed sufficiently to perceive the fundamental difference of these two methods of reasoning—induction, which concludes from the parts to the whole, from the particular to the universal, and deduction, which concludes from the whole or universal to the particular. Induction alone adds something to our knowledge; it alone is the true instrument of general science.

Omitting the theory of necessary ideas, of the logical universals, the rules of dialectics (which are the application of logic to the probable and likely), the enumeration and refutation of the sophisms, we can do no more than mention the ingenious and profound views of Aristotle on rhetoric and poetry, and pass at once to the sciences which proceed in various degrees, and in the experimental order, from zoology, psychic physiology, and logic, to ethics and politics.

Aristotle's moral system is one of the wisest formulated by antiquity, because it is almost exclusively experimental. Regarding pleasure and pain as the two universal mainsprings of all the passions and the incentive of all actions, it has for its object the supreme good of man; and this it seeks in the employment of the human faculties. This sovereign good is "a good universally desired by everyone, desired for its own sake, and for whose sake,

all other goods are desired." Individual or personal morals form merely a part of social ethics or politics.

Moral happiness does not consist in the pleasures of the senses; in wealth, fame, power, nobility; nor even in the contemplation of intellectual things or ideas. These are but aids, which are not inconsistent with happiness, and none of which should be despised. But true happiness consists above all in action, in "the functions of an occupied mind;" in the practice of a virtue, in the choice of the most useful and perfect. Virtue, though deliberately chosen, depends above all on the dispositions of the agent, who should understand, watch, and persevere; for a single virtuous act is not virtue. Aristotle is admirable in his analysis of the particular virtues, and especially in his theories of friendship and justice. "Friendship," he says, "consists far more in loving than in being loved."

Virtues are acquired by determination, habit, or patience, and reason. All of them—courage, temperance, liberality, magnificence, magnanimity, goodness, moderation, gentleness, popularity, uprightness, candour, urbanity, chastity, justice, equity—occupy the mean between two extremes, which are the vices. Hence the axiom, which has been often misinterpreted: *In medio virtus*; there is a certain mean which constitutes moral virtue in all things.

But this mean varies, and it is the province of "right reason" to determine it by means of the great leading virtues—science, art, foresight, intelligence, wisdom—which are the true guides in the search for happiness. Hence the sovereign good is the exercise of virtue controlled by science and wisdom. It does not exclude the lesser goods, the comforts of life. Pleasure in fact is the efflorescence of good, nor does active virtue lack a certain serene voluptuousness. Such is practical bliss, the bliss proper to man, pure contemplation being the attribute of the gods.

Aristotle's moral system has been reproached with the very quality that constitutes its real strength, that is its precision, its experimental value. The sentimental school of philosophy no doubt scornfully prefers the vague and mystic flights of Plato to

all this. But this is merely a matter of taste, for in the long run all ethical systems differ in degree only; all move of necessity in the same field, arriving by seemingly opposite ways at the same goal—the good of man. It is here alone that they diverge: some seeing happiness in an impossible mirage, others, amongst which the Aristotelian, in the thoughtful development of the human faculties, in the more useful relations established between man and all his surroundings, beyond which he has no existence.

By making ethics a part of politics Aristotle sacrificed the individual to the State. This is an error into which all the ancients fall; an error in our eyes, not in theirs, bound up as they were in the sacred ties of the ancient *πόλις*; at the same time an error of degree only, for it contains a certain amount of truth.

Man, he says, is made for society, "he is a political animal." In truth, is not speech itself the evident sign of the social destiny of man? And what meaning could be attached to the ideas of justice and injustice apart from the community? The State alone is the complement of life and of the individual.

At the foundation of society is the family, based on authority. Here the paternal sway is monarchical, the maternal republican—an ingenious formula, whose first clause will have to be modified by modern right. The principle of the State itself is equality in liberty, slaves alone being excluded from all right. Aristotle regards slavery as a natural and lawful state, answering to the inherent inequality of man himself. It would have been better to justify it by war and conventional usage; better still, by the necessity of immemorial custom. Ancient society was incomprehensible apart from slavery.

"The element of the State is the citizen, who partakes directly or indirectly in the public offices. Sovereignty resides in the greater number." Aristotle pronounces none the less in favour of the form of government in which success, wealth, and freedom mutually balance each other. "This equilibrium is most readily brought about by the preponderating influence of the middle classes."

The good of the State outweighs the good of the individual. At

the same time this good is in both cases the same—virtue, realised by science and wisdom, wherein foresight is the practical element. The State, being maintained by virtue alone, must beget and foster it. Accordingly education, leading to the Good by the Beautiful, is the surest prop of the State. It moulds men, that is citizens.

These views, often admirable in themselves, are more removed than we are always willing to confess from the utopian theories of Plato.

While pointing out, far more briefly than we could have wished, all that Aristotle owes to experience and all that science owes to Aristotle, we have not been always able to keep it clear of his metaphysical dross and hallucinations. In him there are two beings, whom he has reconciled by the force of his will, without being able to blend them together. Hence in his painfully shackled system we everywhere detect the successor of Democritus and the refractory pupil of Plato. In his works on "The Soul" and "Metaphysics" the second is uppermost; but even to these abstract subjects he applies the same determined, and often too apparent, rigour as to the study of the physical world and of human societies. This quality, hitherto foreign to Greek thought, this scientific apparatus applied to subjects beyond the sphere of science, earned for this division of his teachings an unlimited authority, which has to this day remained almost unshaken in the general work of education, although virtually abolished by the creation of positive science. Aristotle, though not the inventor, was yet the lawgiver of rationalism, which he has endowed with three gospels: "The Organon," the "Psychology," and "Metaphysics." The first still holds its ground within its limited sphere of efficacy, because based on direct observations capable of proof. The others are fading away under the analytic process, because resting on nothing but logical conceptions transferred to a region of thought beyond all experience.

Aristotle never ceases to oppose science to experimental knowledge. The former, he says, differs from the latter in so far as it supplies in demonstration the proof of what it announces. But the

fundamental science, the first philosophy, is found to be precisely that which supplies no proofs at all. This is not the fault of demonstration. For what can demonstration do, even if the power of proof be not denied it, once it departs from what is susceptible of proof? The *petitio principii*, the vicious circle, is its natural outcome; and this is the end unwittingly arrived at by the inventor of the syllogism—to such an extent are the most powerful intellects capable of being warped by metaphysics.

Aristotle's psychology and metaphysics teem with inconsistencies. He admits the necessity of an experience created by sensation; and he proclaims the superior existence of a right reason, of an intelligence independent of experience and sensation, operating by abstraction on the elements furnished by the senses and experience.

He does not believe in the immortality of the human person, yet he recognises a soul peculiar to each individual and immortal in its essence.

He believes in final causes, but not in a providence.

He does not believe in the direct action of a god on the sublunary world, yet he admits a god *de facto* who is not one *in posse*.

He believes that motion is eternal, and he at the same time believes in a motionless first motive power.

He becomes entangled in these contradictions, from which he is unable to escape. Hence who can feel surprised that the Athenians suspected him of atheism? Nor can we any longer wonder that his immediate disciples, either rejecting, or perhaps unacquainted with the last books of the "Metaphysics" (probably apocryphal), all inclined to naturalism and materialism, or else to atheistic idealism, and that Pyrrho made a clean sweep of everything, replacing dogmatic rationalism by absolute scepticism, without in any way affecting experimental science.

But let us endeavour to define the Aristotelian soul, being, first cause, final cause, and God.

The soul is the form, the *entelechia* (actuality), of the natural organic body, is endowed with potential life, is at once the first and the final cause. In a word, it is a term expressing the sum of

the human faculties. This is the sense in which it is triple or quadruple, sensitive, the nourishing and motive power, rational. To its first three energies belong life and reproduction, the senses, and the imagination, and memory, on which the intellect operates, that is, the understanding or reason, the inner sense which grasps everything and judges on the report of the external senses. This would be a legitimate procedure, if reason were not essentially separated from the source whence it emanates.

The soul does not move of itself, for whatever moves is moved by another. Nevertheless, a portion at least of the intellect seems to escape from this law; for there is a patient intellect, passive like the senses, and like them perishable, although belonging already specially to man; and an active intellect, a free agent, immortal, eternal, not to be confounded with the body. Whither goes this active intellect after the death of the senses and of the passive intellect? Doubtless, beyond the realities, into the sphere of the first mover.

The active intellect seems confined to the brain, to which it has come no one knows whence, whereas the rest of the soul, with life itself, resides in the breast; for life is a permanent state of the soul retained by the natural warmth, and the principle of warmth is in the heart. Warmth ceasing, death ensues.

The intellect and the appetite are the causes of motion. The one knows the object and pronounces on it, the other desires or avoids it. In men there are two appetites, a reasonable and a sensuous, the latter knowing no law except the senses and the imagination. Man is the only being whose imagination weighs and chooses the best. This rational appetite, emanating from this source, *ought* in him to govern the sensuous appetite which he has in common with the brute creation.

The active intellect is practical or theoretical. The practical part moves the will to love or hatred, to desire or shun—a function already fulfilled by the appetite! The theoretical reduces to actuality the intelligible, that is to say, perceives the being and its principle *a priori*, and independently of experience.

This brings us to the *first philosophy*, subsequently named the

metaphysics, which treats of being *qua* being and of its principles. What is being *qua* being? A general term expressing the abstract sum of the characters of whatever is, a category, the category of substance, in a word, entity. But for what science can this logical nothing serve as a foundation? Aristotle found in it *substance* enough for fourteen books. Potentiality and action, matter and form, already spoken of, may here be overlooked, and we may also omit such subtle distinctions as: "Being is, either of itself or by accident, or in act, or in potentiality, or in reality, or in intention;" such strange affirmations as: "The understanding cannot be deceived in the knowledge of immutable things;" the three kinds of substances: one motionless, first mover; another eternal, first motive power, first heaven; a third corruptible, the sublunary world. Omitting also all the definitions, we come at last to the demonstration of the first cause, which is singularly weak.

If there be *eternal* motion and time, there must also be a substance subject of this motion *and moved*, and a substance, source of this motion but unmoved. The inference, or at least the logical conclusion, would be: There must be an eternal substance and space; in which case, to what purpose a first cause? But having adopted the principle—Nothing moves of itself, everything is moved, Aristotle gets entangled in the concatenation of the motive causes. Then he suddenly stops short; and he must needs do so, else we should fail to grasp the cause, and we should have neither science nor demonstration. He stops short, *despairing of a cause* for the first mover, for a first cause, in itself really indemonstrable, and he is obliged to formulate the axiom that all demonstration starts from an indemonstrable.

The rest follows, or seems to follow, introducing argument at times specious enough, but in most cases contemptible; the universal mover is immutable, for nothing can move it; it is bodiless, else it would be moved, which has just been denied; it is a pure act without potentiality, since all potentiality supposes a substance, and this although all action proceeds from a potentiality. It has no dimensions, for if it had it would be either finite or infinite; but it cannot be finite, since it moves with an infinite motion. Nor

can it be infinite, since there can be no dimension of infinite size ; and yet, although without dimensions it is limitless. It is void of parts, because it is perfect, and the perfect is necessarily one. It is perfect again, because it is the being of beings. It is eternal because motion is so, and motion is eternal because the universe is eternal. The universe again is eternal because the elementary principles and their qualities are eternal. Thus God is eternal, *as all being is*.

And yet this first mover is God. This immutable being, according to Aristotle, is "a *living* animal," living without substance, without nutriment, without sensibility ! He has intelligence, but an intelligence wrapped in self. He is the supreme good, yet he knows neither good, evil, nor justice. In him there is neither relation nor action, although he is the pure act. Without body, soul, or relation with anything whatsoever, he yet enjoys supreme happiness, a happiness consisting in self-contemplation. Does not all this read like some monstrous piece of irony ?

Such, and many more, are the contradictions included in the category of the *idéal*. Erasmus, in his "Praise of Folly," wrote : "Who can succeed in understanding all these subtleties, without wasting his mind with a thirty-six years' study of Aristotle's treatises on physics and metaphysics ?" Humanity has in vain been endeavouring to perform the feat for the last two thousand two hundred years.

First cause ; how so ? Since he is motionless and incommunicable. Final cause ; how so ? Since he directs nothing, and bides above the first heaven ; an utter stranger to the successions of forms, to all things that cease to be, to the sublunary world. But what matter ? By his anthropomorphic theory of potentiality, virtually, the possible, Aristotle is led to regard as an intentional though unconscious end, each and every fatal consequence of motion ! But the motionless mover is the principle of motion.

But this mover does not move, since motion is eternal. He moves not ; and yet he moves solely in virtue of being the final cause, as type and goal of universal aspiration ; for he is the good, and to the good are attached the heavens and all nature.

To the first heaven, and to the other intelligences, immaterial and eternal, though inferior, he leaves the care of presiding over the sublunary motion. Are then these motive substances of the spheres gods themselves? Why not? Though this is at the same time a vulgar prejudice, fostered amongst peoples for the greater security of life, and the maintenance of the laws!

As for this god himself of the atheist, this inert god of Epicurus, this useless god—useless, because matter, motion, space, and time are eternal—he hovers over the summits of the universe, occupied in thinking of himself, so that he becomes “the thought of thought” (*ἡ νόησις τῆς νοήσεως*).

Plato's demiourgos took at least the trouble to shape the universe and watch over the constellations. Aristotle's god is the abstract quintessence, the *reductio ad absurdum* of Plato's typical ideas.

To these ideas he has returned in spite of himself, unwittingly and unconsciously, for nothing is better known than the long warfare he sustained against them. Modern eclectics have desired to extenuate its causes and consequences. According to them, by denying the reality of the universals directly conceived by rational intuition, and which he pretends to regard as abstract general terms, Aristotle neither aimed at nor destroyed the direct universals which Plato calls ideas. Plato also admits, like Aristotle, those other universals obtained by abstraction. Aristotle is beside the mark.

Are we then to be told that after twenty years Aristotle failed to understand the doctrine of his master? Such a supposition cannot be seriously entertained. In maintaining that the universals are abstractions, and that Plato's ideas are identical with these same abstract universals, Aristotle aims directly at the fundamental principle of Plato. So true is this, that the same blow that destroys the personal and substantial existence of the general ideas, their pretended influence on matter and on the real world, also annihilates the hypothesis of a previous life, metempsychosis, the immortality of the individual and recollection, as conceived by Plato. Aristotle's victory, in other respects somewhat casual, has yet far more significance than he himself attributes to it. His

theory subordinates thought to its conditions, to the organism producing it, general ideas to the particular ideas suggested by sensation and experience. It makes the concrete, the individual, the starting-point, which Plato seeks in the abstract and the general. It substitutes induction for deduction, the *à posteriori* for the *à priori*. But Aristotle wavered. While regarding laws as summaries of experience, he admitted the rational and necessary truths, the foundations of demonstration, principles incapable of proof, resting on themselves. These inconsistencies prevented him from escaping from the abyss of metaphysics, into the very depths of which he plunged headlong, and in which he has forever remained engulfed.

His disciples did not follow him so far. From Theophrastus to Alexander Aphrodisæus, for a period of six centuries, not one can be mentioned who did not diverge considerably from his logical and metaphysical subtleties. His immediate successors, Aristoxenus, Dicaearchus, Theophrastus, and their successors Strato and Lycon, who continued his teaching in the Lyceum, all more or less decidedly rejected the famous rational soul and motionless mover. For them the soul was the harmony of the various faculties, sensation and thought were motion, the universe was a concourse of elements swayed by fate, nature a spontaneous force inherent in matter, divinity a word or general term expressive of the sum of all motions and forms. It must be confessed that the unanimity of the disciples in discarding the principles that were the glory of the teacher, casts great suspicion on the ordinary interpretation of the Aristotelian ideas. It lends some show of justification to the doubts that have been expressed regarding the authenticity of his works. It is all very well for our professional philosophers to tell us that the school degenerated, that its teaching became corrupted. Their ill-temper will never be able to convince us that both auditors and disciples misunderstood or played false to the instructions of their own master. But these disciples and followers, whether directed by their natural disposition towards the study of aesthetics, ethics, the human faculties, or the universe, attached no value to any except the experimental portion of the Aristotelian

philosophy. They were all essentially materialists, hence the reproaches with which they have been assailed. Strato (286), the most illustrious of them all, was opposed to Epicurus; but while laughing at the theory of the curved atoms, he assigned to weight the function he denied to the forms of the first elements. The rivalry of two schools but ill disguises the identity of their theories. This Strato of Lampsacus, surnamed "Physicus," or the Physicist, was the son of the Platonic sceptic Arcesilaus, and composed much. To judge from the fragments and summaries occurring in the writings of Cicero and Plutarch, the loss of his works is much to be regretted. Here are some of his by no means contemptible views: "Space is the interval between the container and the contained; Time is the measure of motion and rest, the quantity as applied to actions; These are terms of relation without any existence in themselves; The void has precisely the same measure as bodies, and is conceived apart from them only by abstraction. The universe is not an animal; but the natural comes only as a sequence to the fortuitous; the starting-point is given by spontaneity, and then the various natural qualities are developed in due course." We readily understand, as Cicero remarks, that Strato did not need the aid of the gods for the formation of the universe. "All the *divine life*," he said, "resides in nature (that is, as he understands it, weights and motions), and nature is the principle of generation, of increment and decrease, in a word, of change, and is itself void of all form and feeling."

CHART OF THE PHILOSOPHIC WORLD.

§ 4.—*Scepticism and Probabilism: Pyrrho, Arcesilaus—Rationalistic Pantheism: Zeno—Materialism: Epicurus.*

Let us tarry for a moment in the very midst of the vast domain already traversed in every direction by Greek thought towards the beginning of the third century before our era.

This domain, the conception of the universe and of man, has never changed, and never will change. It has its various provinces;

more or less sharply defined, intersected by countless paths, running parallel or in contrary directions, vertical, oblique, winding, with all their crossings, ramifications, main directions, and byways, producing the most unexpected yet inevitable results; paths converging for a moment and again separating, joining and again losing themselves in the unknown, often in the void and inane, seldom going straight to the goal of certainty and reality. It forms altogether a vast historical chart, to be mapped out in time and space; one which, as we journey along, cannot be too sedulously consulted, if we would avoid becoming bewildered in the labyrinth, perplexed at the cross roads, or even lost altogether in the void of scepticism and mysticism, where all safe footing disappears.

This chart is divided vertically into two halves—experience or objectivity on the left; anthropomorphism, subjectivity, or metaphysics, on the right.

At the very summit, in the haze of the remote past, before all civilisation and conscious thought, let us place to the right and under the general title of *anthropomorphism*, the chaos of mythologies, whence flow the countless currents of superstition and religious systems, all trending towards without ever reaching the main stream of monotheism, above which hangs a mist produced by its own evaporations, and named religious sentiment, idea of the Deity. This religious zone occupies the centre of the right division of the chart in its entire length from top to bottom. On the ground covered by it, and in the fogs continually rising above it, the greater part of the subjective *doctrines* will find their home; it will occasionally even trespass beyond the line of demarcation and draw from the left division the pantheistic conception. A little lower down, in the central region to the left, there stretches the domain of objectivity, whence springs Greek philosophy, moral or gnomic with Solon, physical with Thales* (seventh century); and here must be chronologically grouped Pherecydes, Anaximander, Anaximenes, Heraclitus, Anaxagoras, Democritus, Protagoras, while bearing in mind, as we shall see, all individual divergences.

Nearly on the same line with Anaximander, but to the extreme anthropomorphical right, and nearly beyond the region of religions,

on a narrow longitudinal belt named idealistic nihilism, Pythagoras and Xenophanes, Parmenides and Zeno of Elea, Euclid and Stilpo of Megara follow in succession. Notwithstanding the distance separating the two regions and the two groups, there are paths leading from one to the other through Pherecydes and Heraclitus. Nay, more, idealism has often reached a hand over the whole chart, right across to the extreme left of naturalism.

The path of rationalism, with its various byways, winds down the mean line in the centre of the map, sometimes drawing nearer to the left, at others plunging into the right. Of rationalism the special feature is dogmatism. It regards as certain, in various degrees, the two regions which it separates and reunites. It admits the aid of the senses and of experience, while subordinating their results to the logical and anthropomorphical authority of reason. It is spiritualism properly so called, rational dualism, which, by abstracting from substance its general attribute of force or motion, assimilated to the human conscience, creates the two famous entities, spirit and matter. (Still they are unequal entities; for spirit is not an immediate property of matter, being nothing but the product of a special combination of material elements, an entity in the third degree; while matter, apart from motion, the spirit of which is merely accidental, constitutes a simple entity, standing one degree nearer to reality.) Rationalism proceeds from naturalism and anthropomorphism, nay, even from idealism, associated with the first by Anaxagoras, with the second by Socrates, Antisthenes, Zeno the Stoic, with the third by Plato, Speusippus and Xenocrates. With Aristotle it inclines strongly to the left, into which it falls with Strato, returning there with Aristippus, and especially with Anniceris, who joins hands with Epicurus, himself parallel with Zeno.

To the extreme right, as stated, and bordering on the void of mysticism, is situated absolute idealism. On the extreme left is enthroned doubt, threatening to fall into absolute scepticism, a vague region occupied by the disabled, and in which the forlorn hope of metaphysics have met more than once. In point of fact, doubt, emanating above all from the individual temperament,

radiates both to right and left; it insinuates itself into all doctrines, it is the antithesis of all dogmatism. In spite of the sententious Royer-Collard, most minds assign to doubt a certain function, limiting it, some to the objective, others to the subjective world, to certain categories of beings or ideas, escaping from it by affirmation and negation, whether based or not on experience, and named either science or faith, as the case may be. It is even remarkable that incurable definitive doubt is often found lurking at the bottom of absolute idealism. In fact, idealism having radically denied the existence of a material world, should doubt assail the ideal world itself, it becomes no longer possible to fall back on any certainty. On the contrary, doubt beginning by setting aside the pretended real world may possibly arrest its career in the presence of sensuous reality; freed from the absolute, the mind may still cling to the relative. There results a very mitigated form of scepticism, notwithstanding its uncompromising and self-deceiving formulas; a scepticism consistent with objective science and practical ethics. Such was the scepticism of Pyrrho, who, it should not be forgotten, proceeds, through his master Anaxarchus, from Protagoras and Democritus. His starting-point is not the metaphysical but the naturalistic conception, and it was in his school that the intermediate metaphysicians, such as Arcesilaus, acquired the scepticism which they introduced into the Academy, and in virtue of which they were regarded as the founders of a new school, known as the Second or Middle Academy.

Pyrrho was preceded by a regular series of sceptics. Heraclitus proclaimed the uncertainty, the instability, the ebb and flow of all things. Democritus, when insisting towards the end of his life that there is no truth, or that "if there is any truth we cannot know it," pointed in the direction pursued by the greater number of his disciples, diverging to the extreme left as far as Pyrrho, but not beyond him.

Pyrrho flourished at Elis about 340 before our era. After studying the works of Democritus, attending the school of Megara and the lectures of the Sophists, doubtless already impressed by the gaps of science and the contradictions of metaphysics, he

resolved to see with his own eyes and to question for himself the great book of the universe. In company with his master, Anaxarchus of Abdera, he followed Alexander to Asia. In the midst of nations either decrepit or arrested in their development, he was here able to compare the manners and morals of the weak with those of the strong, the servility of the vanquished with the haughty intoxication of the conqueror, and thus to contemplate life in all its varied aspects. He returned home, undeceived, henceforth indifferent in the midst of jarring systems that exhausted themselves in a confused struggle for victory. He accepted from his fellow-citizens the honour of the priesthood. Why not? Wisdom, soaring above piety and impiety alike, accommodated itself with an indulgent smile to the illusions of mortals, "who are born and fall like the leaves of the trees." Between the bastard Pythagorism of Plato's immediate successors and the nihilism of the school of Megara, inspired by the Eleatic teachings; between Aristotle's rational dogmatism, the flaunting cynicism of the Stoics, the laxity of the school of Cyrenaica, and the subtleties of the Sophists, Pyrrho made no choice, kept aloof, abstained even from writing. Herein lies the explanation of the famous *ἐποχή*, abstention, suspension of judgment, which in practical life takes the name of *ἀπάθεια*, apathy, indifference, or rather *ἀραπαξία*, imperturbability. But this abstention or indifference was not entertained towards everything, as has been too often asserted, but only to the metaphysical absolute, the pretended logical certainty arrived at by the syllogism and demonstration. In a word, Pyrrho's doubt amounts merely to a denial of the *ἀδελγὰ*, or "hidden things," the essences, the relations and invisible laws of beings. It is essential also to note that, although considering it absolutely impossible to deny or to assert them, he accepts all the results of sensation. The *φαινόμενον*, phenomenon or appearance, is the only and sufficient criterion, beyond which we cannot penetrate. He knows nothing of what may be behind appearances, and he declines to dispute about essences.

Emile Saisset, who has otherwise perfectly understood the *ἐποχή* and *ἀπάθεια*, endeavours to make Pyrrho an idealist. "The

Pyrrhonic doubt," he says, "revolves altogether in the objective world; it does not affect the region of conscience and subjectivity." The idea is correct enough; but there is here a confusion of terms. The phenomenon is not subjective, as the idealists maintain, for it is inherent in the objective, in the exterior world, and revealed through the senses. What is subjective or anthropomorphic is the metaphysical and logical explanation of the phenomenon. Pyrrho limits himself to verifying; and all verification of a fact of conscience (there is no other) is necessarily objective. Hence he takes his stand, or thinks he does so, between the object and the subject, in the appearance which affirms both one and the other, but the one only as measured by the other; for the subject is the measure of the object: *ἀνθρώπου πάντων μέτρον πάντα πρὸς τι*; man [that is, the mind or conscience] is the measure of all things; all is *relative*.

Pyrrho's scepticism is nothing else than the doctrine of the *relative* so energetically adopted by Auguste Comte. To satisfy ourselves of this, it will be enough to appeal to the fundamental propositions (*τρόποι* or *τοποὶ τῆς ἐποχῆς*), as developed by the disciples of the master, during the course of six hundred years, and the invention of which is by Plutarch attributed to Pyrrho. Here they are, as summarised by Saisset: "Knowledge is relative to the animal that perceives; to the sense which is the instrument of this perception; to the disposition or temperament of the subject perceiving; to the situation of the thing perceived; to the circumstances under which it is perceived; to the quantity and constitution of this object; to the rareness or frequency of the perception; lastly, to the defects, the beliefs, and opinions of the perceiver." Nothing can shake these arguments, which dispose of all metaphysics. But it would be vain to ignore the fact that scepticism has borrowed them from materialism and sensuousness. Democritus and Protagoras, far more than Parmenides and Euclid, are the inspirers of Pyrrho. There are two classes of sceptics, as there are of sophists. Pyrrho is one of the leaders of the first, and cannot be divorced from them.

But, however reasonable and important in itself, it may be

doubted whether the idea of relativity is sufficient to constitute a system, to characterise a philosophy independent of material objectivity. It is in itself nothing but an undeniable affirmation, a preliminary accepted by all experimental doctrine, but absolutely barren if we stop short at this stage. Science necessarily goes further. Useful as introductory teachers, Pyrrho and his true disciples, Timon, Ænesidemus, Agrippa, Sextus Empiricus, Montaigne, La Mothe le Vayer, Bayle, have all deliberately remained at the threshold of philosophy. Whenever, in spite of themselves, they entered its precincts, they did so as sensualists and materialists.

The affirmation of the relative is the negation of the absolute. Once for all conquered to science, it has done its work, and must then yield to experience, the road to which it has disencumbered. Everywhere implied, it may everywhere be neglected. Science continues to classify the acquisitions of human knowledge, which are necessarily relative, since a living and sentient being is incapable of possessing any other, since no others exist, and since they have in fact for him the value of absolute knowledge; and philosophy, invented by man for man, goes on affirming and denying in accordance with this knowledge, which is practically absolute. Metaphysics are the only *raison d'être* of scepticism. Vanquished, they drag their conqueror with them, and the two disappear together, or at least they ought to do so. But men are perpetually following in the beaten path. The successive generations reproduce the same temperaments, the same inquisitiveness, the same ignorance, and so it must continue to be till the sciences are firmly and authoritatively established. This is why the struggle between metaphysics and scepticism has been protracted from Democritus to Kant and Auguste Comte—a struggle full of strange vicissitudes, and occasionally no less singular compromises.

The probabilism of the New Academy is an example of these overlappings, of these interchanges and middle terms. It proceeds through Arcesilaus from Pyrrho, but also from the scepticism implied in the "irony" of Socrates and the shifting dialectics of Plato. The "verisimilar," the new criterion of Arcesilaus, derives

altogether from the "phenomenon" of Pyrrho and the Platonic Absolute—from the one, because it invokes the concatenation of phenomena, from the other because it supposes and implies the truth. It is, therefore, sceptical and metaphysical, just like Kant's *practical reason*.

Arcesilaus and his successors were far less philosophers than critics and controversialists. Arcesilaus was the scourge of Zeno the Stoic; but if he had it all his own way in dealing with the feeblest of logical and metaphysical systems, he failed to substitute anything of consequence in its place. This task was reserved, not for sceptical but for affirmative teaching, for the great objective doctrine invented by Anaximander, developed by Democritus, for ever enthroned by Epicurus.

Pyrrho, a man of genius and a man of feeling, had for contemporaries Epicurus and Zeno, who, notwithstanding the many relations that may be established between their teachings, are on very different grounds the two great lights and the two great advocates of independent philosophy. They remain so for many long ages. After them, and apart from their influence, the decay of philosophic thought sets in, and there is an end of Hellenic development. Deplorable consequence of Alexander's conquests. By diffusing the Greek genius amidst decrepit races, a prey to superstitions and to religious mysticisms, races whose mental efforts never rose above fancy to the true realm of thought, the Macedonian surrendered philosophy to fatal associations, to monstrous alliances, whence could spring nothing but hybrid chimeras, portentous phantoms of diseased brains. The chaos following on the Roman conquest completed the disorganising work of Alexander and the social decomposition necessary to prepare the world for the acceptance of Christianity.

Zeno (362-264), of Citium in Cyprus, was at first a merchant, who traded in Phœnician purple. Ruined by a shipwreck, he sought consolation in philosophy.

This accident influences his whole teaching. The founder and his immediate disciples had all to struggle against adversity. Hence the moral tone so peculiarly the feature of stoicism; hence

that austerity, that contempt of pain, that haughty resignation in the presence of blind fortune and the ills of life, that practical heroism of which they supplied so many examples, and which has caused their theories to be forgotten. But philosophy is not composed of the patience, courage, self-respect, which they did not invent, but which belong to all times, to all countries and doctrines. This they were themselves conscious of, and they strove to base their ethics on a system put together piecemeal, and whence nothing can be drawn except a materialistic pantheism. Let us see how they set to work.

From his early youth Zeno had been imbued with the Socratic philosophy by the writings that his father brought with him from Athens. After his shipwreck no haven could be more welcome to him than the school of the Cynics. He was introduced to Crates, the most worthy successor of Antisthenes, and he attended his lectures. Crates was his true master, and if when quitting him Zeno also renounced the rags and other puerile excesses of an outward austerity, he never escaped the influence of that first instruction. After composing a treatise on "The Commonwealth," in which the coarseness of Antisthenes was associated with the communistic Utopia of Plato, and in which the family, property, and the arts, were proscribed, he attached himself to Stilpo and Diodorus Chronus, dialecticians of the Megaric school. While completing his metaphysical studies at the academy, under Xenocrates and Polemon, he neglected neither the Ionian physics of Heraclitus nor the logic of Aristotle, whose Categories he epitomised. After this long training, his head full of ideas often contradictory and above all badly digested, he established himself under the *Ποικίλη Σκῆνα*, or Painted Porch, so called because embellished with the paintings of the celebrated Polygnotus. His learning and his virtues attracted large audiences, and even king Antigonus Gonatus, afterwards his constant friend, never came to Athens without visiting him and attending his lectures. This prince would have gladly brought him to his Macedonian court, but in any case accepted at his hands a counsellor in the person of the Stoic Perseus. Without forgetting his native place, Zeno regarded

Athens as his true country, and was held in high esteem by the Athenians, who entrusted him with the safe keeping of the keys of the Acropolis, and at his death passed a decree declaring that he had well deserved of the State, and awarding him a golden crown and a monument in the Ceramicus. He had lived for nearly a hundred years, and taught for fifty-eight. His numerous writings have perished, and his doctrines have been confounded with those of his disciples, Athenodorus, Ariston of Chios, Herillus of Carthage, and especially Cleanthes of Assos and Chrysippus of Soli. The unanimous statements occurring in various writers—Cicero, Plutarch, Diogenes Laertius, Sextus Empiricus—justify the belief that his successors added nothing essential to his teaching. They contrived, not without great difficulty, to give it a semblance of cohesion; but they introduced no original views on the universe, man, reason, virtue, and it would be easy to assign to Heraclitus, Plato, Aristotle, Socrates, and Antisthenes, their several parts in the system of the Stoics. This defect had struck the ancients, who were wont to remark that “Zeno innovated in words rather than in things.”

Zeno admitted that fire is the principle and the end whence the world springs, and whither it returns. He taught the dualism of matter and of forces represented in the universe by bodies and motion, in man by the body and the soul. But these two elements were both alike corporeal. The motive force and the soul proceeded from the air, or the ether, a divine substance. Providence was fatality in action. The various deities were nothing but the names of certain motive energies distributed throughout the various orders of phenomena. Zeus, the supreme god, residing chiefly in the sun, differed in no respect from the air, or the ether; he was everywhere diffused. Under the favour of this naturalistic interpretation Zeno lived in peace with all the gods of the mythology; but his real god was the universe—nature—and his general system was pantheism, one of the best known varieties of anthropomorphism.

Man—image of creation, that is to say constituted like the world, the great living being, of a body and a soul—was nothing

but a temporary union of two parts destined again to return to their principles. Hence the immortality of the soul, as understood by Zeno, was a complete delusion; and this is equally true of all purely sensualistic systems, to say nothing of the others. But for Zeno all ideas—memory, without which there is no conscience; reason, which acts only on the elements supplied by memory—proceed from the senses. The three degrees leading up to certainty, *συγκατάθεσις*, or admission, *φαντασία καταληπτική*, apprehension or truthful representation and knowledge, have no foundation except appearance, passive sensation, *φαντασία, αἴθεσις*.

Zeno maintained, none the less, that the philosopher may occasionally rely absolutely, and without reserve, on the representations of his intelligence. To this Arcesilaus very speciously objected dreams, delirium, the contradictions of our judgments, the diversity of opinions, and still more the purely sensuous and contingent source of all knowledge. Zeno fancied he saved his famous *truthful representation* by defining it "a certain impression on the principal part of the soul, formed on the model of a real object, and such as could be produced by no other cause except reality." But, replied the probabilist, where is the criterion of this reality? Zeno beat about in vain in this vicious circle. Yet he might have easily escaped from it, had he consented to proclaim that for man the criterion of reality is sensation reiterated and sufficiently confirmed; and this all the more that his psychology admitted of no other solution, and that in fact there exists no other. But Zeno affected to reconcile Plato and Aristotle with Heraclitus and the Ionians.

How did he arrive through passive sensation at free will, the absolute efficacy of the will, the sovereignty of reason? By forgetting the reality of things, and of human nature, as he himself had conceived them. He proscribed whatever tended to shackle freedom and darken reason; hence condemned the passions and pleasures, and paid little heed to social organisation. He said that man should live in accordance with virtue. Excellent! but what virtue? and what constituted virtue? It was so easy to avoid

contradictions and obscurity ! to teach that man should take as his guide acquired experience, that is to say reason, and seek good and virtue in the rational employment of his faculties for the individual and general advantage. But such rules were too simple in that age of dialectics.

It is probable that the conception of the *sage*, sinless, impassible, superior to kings and gods, originated with the founder of the Stoic system. It was no doubt familiar to the Bramanical asceticism and to Buddhism. But Zeno had no need of foreign models, otherwise doubtless unknown to him ; he obviously drew from his own resources.

After him his pupils—while reducing his doctrines to a definite system, and modifying it according to their particular temperaments—carried it to extremes unforeseen by their master. His immediate successor, Cleanthes of Assos (300–220) exaggerated their mystic tendency. This venerable athlete, who devoted the day to philosophy and the night to the most laborious offices, was not made for the subtleties of logic, he was a man of sentiment. His contemporaries regarded him as an ass, less perhaps on account of his awkwardness than of the narrowness of his mental faculties. “Ass, if you will,” he retorted ; “but the only one strong enough to bear the baggage of Zeno !” He was unquestionably sincere in this, but at the same time he had reduced this baggage of his master to very little : an astronomy behind the age, which superadded the most childish anthropomorphism to the system of Heraclitus ; a hollow theology, and lastly, a moral code as strict in practice as it was vacillating in theory.

The sun he defined an *intelligent* fire, nourished by the vapours of the sea, and which at the solstices retraces its steps in order not to withdraw too far from the source of its supplies. In this “*intelligent fire*” resides the governing power of the universe. Like so many other philosophers, he admitted the immobility of the earth, but he erected this opinion into a religious dogma. Hence Aristarchus having, by the intuition of a genius far in advance of his time, suspected the double motion of the earth.

on its own axis and around the sun, Cleanthes accused him of impiety, and brought an action against him *for having disturbed the repose of Vesta!*

After this what are we to think of the god of Cleanthes, supreme, eternal, all-powerful, immutable in his laws, origin of life and of good, or order and intelligence, and who is now the sun, now the world, and again the soul of the universe, the ether or reason, in whose honour he composed the hymn preserved in the Anthology? Apart from a somewhat decided naturalistic colouring, we have here already embodied that chaotic residue of all the rational abstractions, that quintessence of contradictions so deeply planted in the human brain by inheritance and Christian education.

For Zeno's precept, *Live according to virtue*, Cleanthes substituted a still more vague and dangerous formula, implying as it did fatalism and divine grace; *Live according to nature; that is, according to reason making its decision amid our natural tendencies*. He added, that the "moral sense" is the privilege of a select few, anticipating the New Testament doctrine, "Many are called but few are chosen," and forgetting that his maxim precisely accredited this moral sense, this *reason making its choice*, to Nature, to the sum of the universe, which he names Zeus, or God. "Guide me," he writes in the famous hymn, partly preserved by Stobæus, "Guide me, Father and Lord of the universe, in harmony with thy pleasure; lo! I am ready to follow thee. To resist would still be to follow thee, but with the pain caused by compulsion. The destinies drag to the destined goal those who do not go there of themselves. But then we are overtaken as cowards and weaklings by the fate which we might have endured firmly and worthily;" in which case it may be asked of what avail is the *reason making its choice*? Is not the renunciation of the power of choice complete?

Cleanthes was a sort of saint or ascetic, but can scarcely be called a philosopher. The school honoured by his virtues seems to have been swayed by his influence. The frail edifice erected by Zeno could scarcely resist the attacks of Arcesilanus, and was destined soon to collapse. The first Stoics who had attended the lectures of the master had abandoned his doctrines, and were

drifting about amidst the various contemporary systems, when Chrysippus, like another Paul, appeared on the scene and revived stoicism. All antiquity bears testimony to his unwearying energy (he had written more than seven hundred works), to his polemical and dialectical talents, to his varied acquirements; but it refuses him all serious claim to originality. He touched on all questions, he even probed them, but failed to fathom them. All his skill and ingenuity were unable to impart to sensualistic pantheism that cohesion and certainty which it must ever lack.

Like Zeno, Cleanthes, and later on Epictetus, Chrysippus also had been familiar with misfortune and poverty. Having wasted his patrimony he was compelled to withdraw from his native place, Soloe, or Tarsus, in Cilicia, and his needy state naturally attracted him to the school which professed to despise and suppress sorrows. If for a few years he forsook the Porch for the Academy, it was only for the purpose of learning how to handle the weapons of his future adversaries. At the same time his personal taste for dialectics, added to the persuasive charm of Arcesilaus, had all but succeeded in retaining him in the enemy's camp. His treatise "On Dimensions and Numbers" is supposed to have been composed during this period of his life. It was doubtless a school exercise on the arithmetical fancies so dear to Pythagoras and Plato. Finally, however, he returned to stoicism once for all, and became the champion of Cleanthes: "You supply me with the theses," he said to him, "and leave the demonstrations to me."

Chrysippus seems to have departed considerably from the teachings of Zeno and Cleanthes. But it is all the more difficult to say to what extent, inasmuch as his system absorbed that of his masters; the definitive shape that stoicism assumed being entirely his work. He imparted to it the clearness and subtle precision of his own mind. But the brilliant qualities that dazzled his contemporaries, the justice and severity of his deductions, serve only the better to reveal the general weakness of the system, and for us this constitutes their real value. Chrysippus ends everywhere in blind alleys. His physics, Ionian, materialistic, determinist, merge ultimately in metaphysics; his sensualistic

psychology makes shipwreck on the rock of free will ; his logic fails to keep clear of the "absolute criterion ;" and his moral code "according to Nature" ends in the overthrow of social ethics.

For Chrysippus there are nothing but material objects. "What is limitless is naught ;" hence the infinite of space and time has no real existence. There is no such thing as chance, chance being merely a cause hidden from the human mind. An inevitable and immutable concatenation regulates the succession of things and of actions, the germ of which, *the spermatic reason* (one of the terms of the school) was already contained in the primitive fire, the seed of the universe. This is, indeed, the determinist theory ; it is fundamental, vitiating everything opposed to it.

The world and man are twofold, both containing a substance more subtle without being incorporeal, that guides and governs them. This active force is God in the universe, the soul in man. But while the thought and actions of God (fire, or the ether ?) are adequate for the immutable concatenation of things, and whereas providence is indistinguishable from fatality, the human soul remains free, under the law of destiny—the soul at least of the sage, which is alone destined for immortality. The souls of ordinary mortals, once severed from the body, perish with it. Death is the end of all individuality. In spite of some verbal discrepancies, the logic of Chrysippus is that of Zeno. He fancies he finds certainty not in agreement, conviction (*κατάληψις*), *right reason*, but in direct and immediate evidence. Descartes shared in the same exceedingly superficial illusion. They failed to perceive that evidence is nothing but the "appearance" of Democritus ; experimental verification, with which science remains satisfied ; which we accept as the basis of a sufficient certainty, but which those who cling to the theory of the absolute have no right to make the foundation of their criterion.

The fourteen logical categories of Chrysippus are not to be despised, as far as they afford the means of classifying beings and ideas. He groups them under three heads : substance, quality or accident, and relation. We need not refer to the three hundred and eleven volumes devoted to the study of language, of general

grammar, of the proposition and the syllogism. Their loss is to be regretted if, as is said, Chrysippus had added much to Aristotle, and carefully distinguished several species of ratiocination irreducible to the syllogistic form.

The ethics of Chrysippus, as far as we are acquainted with his system, are a strange tissue of incoherencies. First of all he places the origin of justice in Zeus and nature, which we have higher up seen identified with fatality. He imagines a natural right apart from all social contract and from all human institutions, the common chimera of all rationalists. According to Cleanthes, man should live in conformity with nature (or better, with the anthropomorphic idea entertained of nature). To this Chrysippus added: in conformity with human nature which resides in reason. But in as much as he regards human nature as a summary of universal nature, his precept is worth neither more nor less than that of Cleanthes. Like his masters, he excludes from human nature the passions and affections, thereby mutilating it. Still he does not go so far as to assert with Cleanthes that pleasure is opposed to nature. He admits the secondary importance of wealth and of health. But this glimmer of good sense does not preserve him from the Utopia revived in modern times by Rousseau. He brings man back to the savage state, to the state of nature, and if we are to believe his commentators, he does not shrink from becoming the apologist of incest, of prostitution, and of anthropophagy—after death. "The example of the animals," he says, "shows that nothing of all this is immoral or against nature." But these aberrations are not pushed to their logical consequences, and prove only that the Stoics, successors of the Cynics, never suspected the purely social origin of ethics.

Hence their *sage*, superior to the gods, as useful to Zeus as Zeus is to the universe, a privileged being in a world where all beings should share alike in the universal reason, becomes a monstrous and contradictory creation. He is impassible and sinless; evil exists no longer for him, because he is supremely happy, and may say to the gout: "Pain, thou art no evil." To him everything is permitted; absolutely free, he may sit in judgment

on his life, and suppress it when he pleases, so that suicide becomes fully justified. Doubtless his immeasurable pride enables him to play a dignified part amid the caprices and injustice of fortune and tyranny; but his scorn is too often fruitless, and borders on resignation. In fact, strong, wealthy, handsome, a king or god, he enjoys absolute indifference, imperturbability (*arapaßia*), apathy. He becomes the ascetic or fakir, but ceases to be a man. Released from all shackles, from passion, fear, hope, even decorum, he may touch pitch without being defiled, wallow in the mire without falling from his high estate. All the Stoics did not avoid this logical extravagance, in which so many votaries of mysticism have indulged.

But to sum up: a physical, experimental conception of the universe, turning on a dualistic anthropomorphism; a sensualistic psychology, proclaiming without any proof the absolute freedom of the soul; a moral code conformable to nature, while suppressing the passions and society, that is to say, the *natural* conditions of ethics; a pantheism, at once atheistic and mystic, a hybrid medley of every contradictory idea imaginable; such are, viewed philosophically, the main features of one of the systems that prepared the way for Christianity.

A noble idea, no doubt, commends the Stoics to posterity, and constitutes their name a title of honour. But, though they aspired to liberty and justice, instead of realising these virtues in action, they based them on a negative and personal illusion, on a barren ideal.

In the doctrine of the Porch all is confusion, obscurity, incoherence; in the philosophy of Epicurus, all is simplicity, clearness, unity. Note, however, that we do not say everything is here also truth. The state of the sciences and of society involved him in numerous errors; but his system still sketched a scheme in which all truths might find a place, because, being based on acquired experience, it appeals to the experience of the future.

The epicurean, like stoicism, has been called an inferior philosophy, a philosophy of decadence, in so far as it subordinates the conception of the universe to a certain end of an exclusively moral

and practical order. And regret has been expressed at the long eclipse of *speculation*, supposed to have been extinguished with Plato and Aristotle. But these are the regrets of metaphysicians reduced to the last extremity, involving an error of fact and judgment alike.

The two systems of Zeno and Epicurus are general theories of man and the universe in the same sense as are those of Democritus, Protagoras, Plato, Aristotle, which no more lacked a practical aim than those did, as is seen in Plato's "Republic," Aristotle's "Ethics" and "Politics." Stoicism, by aiming at moral liberty, and epicurism at the intellectual enfranchisement of man, in no way departed from the conditions of all philosophy.

If it is the province of *speculation* to connect the known with the unknown by means of more or less probable hypotheses, no system has been more speculative than stoicism, nor are the metaphysics of Pythagoras, Plato, or Aristotle, from this point of view, much more valuable than those of Zeno and Chrysippus. The epicurean system no doubt attempted to replace speculation by verification, and this constitutes its true and permanent glory; for it is by this that it has outlived all the ambitious aberrations of the human intellect, and still challenges the respect of modern science, as a guide and predecessor. Still it has far too often unwittingly preserved the hypothetical feature so dear to metaphysicians.

Epicurus, its founder, was born at Gargettus in Attica, in 341 B.C. He passed his early youth in Samos, whither his family, of ancient and illustrious origin, but in reduced circumstances, had emigrated with an Athenian colony. His talents were early developed; and it is related that when a grammarian, or schoolmaster, explained in his presence the line from Hesiod: "In the beginning Chaos was born," he asked: "And who created it?" The grammarian, taken aback, dismissed him to the philosophers for an answer.

Anaxagoras, Archelaos, and, especially Democritus henceforth became his instructors. Full of their writings he withdrew to Athens, in order to attend the lectures of Xenocrates, and Pamphilus, Plato's successors, and the semi-Pythagorean Nausiphanes,

who had been a disciple of Pyrrho, and inclined towards Democritus. Compelled, after the death of Alexander (332), to rejoin his family in Asia Minor, he established a first school at Colophon, and afterwards taught at Mitylene and Lampsacus. In 305, now thirty-six years old, he settled in Athens. His amiable disposition and attractive manners, the clearness of his teaching, which made a clean sweep of all dialectical and metaphysical subtleties, the simplicity of his moral system, which sanctioned the temperate satisfaction of all our wants and all our faculties, attracted multitudes to his lectures, and he became immensely popular.

His doctrines admirably suited minds wearied of systems and superstitions, hearts anxious about the future. His was a gentle wisdom, leading by direct and pleasant paths to peace and serenity.

In the midst of intellectual and political anarchy, at a time when the Greek world had become a prey to the varying fortunes of Alexander's successors, a faithful group of congenial disciples met together in his modest rural retreat. Here friendship, peace, and the serious pleasures of study reigned supreme; here beneath a grateful shade, by the banks of a sparkling stream, a free interchange of thought pleasantly relieved the instructions of the master. The abstractors of quintessences, the sceptics and the ascetics became the butt of a delicate satire. While indulging in a sly laugh at all the gods, a gentle but firm hand swept away, like so many troublesome flies, the vain terrors and fear of death, the cares of life, all ephemeral ambitions, intriguing vengeance and empty greatness. And as the day closed, from some terrace still reflecting a last lingering ray of the setting sun, they contemplated the stillness of night as it fell on the confused murmur of men and things. And so the hours glided by in this refuge of wisdom.

Entirely devoted to his pupils and his works, of which he composed some three hundred, Epicurus remained unmarried. His disciples were his children, and with them, when a famine came, he shared his bread and all his stock of provisions. Personally, he never deviated from a standard of sobriety and moderation as much in harmony with his teaching as it was needful for his

delicate health. An obolus, Seneca tells us, more than sufficed for his daily wants. The sufferings caused by a chronic complaint he endured and triumphed over without weakness or ostentation.* His old age was soothed by the devotion of Leontium, a female pupil, who could both write and think. The laxity of public morals amongst the ancients has suggested that she may have been his Aspasia, though she would seem to have been more particularly attached to Metrodorus, the most constant and intimate friend of Epicurus. At least he was the reputed father of her children, who were cherished by the venerable master, and remembered in his will. Epicurus died in 270, aged seventy-one years, after having emancipated his slaves, and bequeathed his garden to his disciples. The letter has been preserved which he wrote to his friend Hermachos on the day of his death :

“I write you on this happy day, the last of my life. I suffer from disorders of the bowels and the bladder more than it is possible to imagine. But to my torments I oppose the happiness of my mind, while recalling to memory the proofs of the important truths that I have established. I commend to your care the children of Metrodorus. It is a care worthy of the devotion that you have shown in your youth for philosophy and for me.”

Some fragments, some important letters preserved by Diogenes Laertius, and two books of the treatise “On Nature,” discovered at Herculaneum, are all that has survived from the pen of Epicurus. But the loss of his works need not cause excessive regret ; for he was no master of style. Nevertheless his teachings were not doomed to be shorn of the splendour of outward form. Lucretius, the prince of Latin poets, undertook the task of handing them down to posterity in all their majestic fulness.

The mother of Epicurus had been a magician and soothsayer, and as a child he had assisted her in her arts. In this capacity he learned to appreciate the vanity of superstition and the hold it has on the mind of man. A pupil of the Eleatic Academicians Xenocrates and Pamphilus, and of the sceptic Nausiphanes, he learned from them to despise the futility of idealism and the ambitious emptiness of dialectics. Resolutely turning his back on

fictions, he returned to the direct study of reality, forgotten since Plato wrote, and adapted by Aristotle to the laws of the reasoning faculty. He sought, and everywhere discovered, that sequence and concatenation of things and actions, that *species ratioque*, which are produced in the objective world, independently of all logical fancy, of all abstract reasoning. In the path on which he now entered he met Democritus and his Ionic forerunners, and finding their inductions in accordance with his own he accepted them.

It has been said over and over again that his conception of the universe was not new, that his doctrine was borrowed, a reproach equally applicable to the theories of Plato and Aristotle. But it is added that Epicurus avoided mentioning his predecessors. Are we therefore to understand that he refused to recognise their services? The respect paid by Lucretius to Democritus is sufficient to prove the contrary, while, on the other hand, his explicit reservations establish serious differences between the two systems. The principal discrepancy—one which constitutes the essential originality of Epicurus, but which there has been shown a reluctance to acknowledge—turns on the question of certainty, or rather on the value of the common criterion. Democritus did not escape the besetting sin of “the absolute.” Behind *appearances* he sought the *absolute truth*; and he declared that this truth was unattainable, that it lay at the bottom of a well. His naturalism thus inclined towards scepticism, and gave rise on the one hand to the quibblings of the Sophists, on the other to the *suspension* of Pyrrho. As a preliminary, doubt is not without a momentary advantage; but as a conclusion it becomes trifling and baneful. It is of course quite possible that the reality may not happen to correspond with our sensations. But this is a truism which it is enough to formulate and bear in mind. It would be useless to stop short at that stage, since sensation, when irrefutable and decisive, is our only test of reality. Epicurus avoids such an impotent conclusion. The relative is enough for him, as it is for all men; and he accordingly leaves in their proper place, that is on the threshold of philosophy, the absolute, the self-existing being, and other fanciful categories. The neglect of an insoluble

problem, one too which there is no need of putting forward, is the sign of a clear mind and a discerning spirit. On this account alone, if for no other reason, the system of Epicurus was something new. It is so still, and will long continue to be so, until the time when we shall have learnt to distinguish emptiness from depth, when metaphysics will be banished from science.

The peculiarity of the rationalists is that they regard reason as an irreducible, a constant element; a faculty coming no one knows whence, jointly with a certain number of cut-and-dry ideas on the good, the beautiful, the just. Even those whom experience compels to admit that ideas proceed from sensation stop short at the very vanishing point of the chimera of the universals and innate ideas. They are unable to understand that intelligence is a more or less gradual acquisition of the human organism, that thought has certain necessary conditions which must be known in order to define its nature. They persist in taking the effect for the cause, the capital for the base; thus building a sort of castle in the air, which they violently assimilate to the universal reality.

Epicurus begins at the beginning—with the first fact which invincibly proves the existence at once of the subject and object—of man and the outward world. This fact is sensation, which defies Pyrrho himself. Before analysing sensation Epicurus verifies it. He observes that the particular sensations are the only real elements of general knowledge, or *opinion*. Sensation is followed by memory, which gradually accumulates a stock of notes and points of comparison, and which sums up in thought the characters of the various objects revealed by sensation. Thanks to these notes, points of comparison, and summaries of sensuous experiences, we possess a knowledge, *by anticipation*, of objects already felt; and this anticipation enables us to decide how far the new sensations differ from, or harmonise with, the old. From the agreement of the sensations on one and the same fact springs certainty, definitive evidence. The starting-point of knowledge, that is of thought and reason, sensation is no less so of action and the moral order. Action springs from *passion*, or sensuous impression; and the character of all passion, of all sensation, is alternative, that is

either pleasure or pain. Action avoids the one and seeks the other. Hence pleasure becomes the end of ethics. But what pleasure? This will be explained after we have set forth the extremely simple rules of the Epicurean method or *canon*. We shall then have to ask whether from his unassailable principle Epicurus draws all the consequences in which it involves the individual and society.

The canon is formulated in twelve precepts: four for the province of sensation, four for that of anticipation, and four for that of passion.

First series :

- (1) The senses never deceive.
- (2) Error affects opinion alone.
- (3) Opinion is true when confirmed or not contradicted by the senses.
- (4) Opinion is false when not so confirmed, or when contradicted by the senses.

Second series :

- (1) All anticipation comes from the senses.
- (2) Anticipation is the true knowledge and the very definition of a thing.
- (3) Anticipation is the principle of all reasoning.
- (4) Whatever is not evident of itself, that is, by direct sensation, must be demonstrated by the anticipation of something evident.

Third series :

- (1) Take such pleasure as may not be followed by any pain.
- (2) Shun such pain as brings with it no pleasure.
- (3) Shun such enjoyment as must deprive you of a greater, or cause you more pain than pleasure.
- (4) Take such pain as releases you from a greater, or is followed by a greater pleasure.

Although these twelve aphorisms have been the subject of much

misplaced contempt, no one has succeeded in disproving the statements that sensation and acquired experience (anticipation) are really the only instruments of knowledge, the only tests of truth, and that our actions proceed from no other mainspring except pleasure and pain.

At the same time, as formulated by Epicurus, the first four rules stand in need of some modification. The axiom, "The senses never deceive," is not sufficiently explicit. It would have been more accurate to say: Sensation is an undeniable fact, nothing can do away with the fact of its production; each of the senses, in communicating it to the common centre, neither takes from nor adds to it; it never deceives. Nevertheless, sensation stands in a certain relation to the remoteness, the precision, the healthy or morbid state of the sense receiving it; we cannot conclude from a single sensation; reiterated sensations of the same order alone establish the idea or fixed image of the object; this idea or image remains incomplete until sensations of the other orders have been added to the first, contemplating the object, so to say, from every point of view. The sensations do not mutually control, but supplement each other.

Here would have been the place to produce the definition of *anticipation* or acquired experience, whence results opinion. Had this been done, the second canon, "Error affects opinion alone," would have been more intelligible. Opinion is deceived whenever the acquired experience is inadequate. "It is true when confirmed by the senses" again consulted; Epicurus adds: "or when not contradicted by them"—a useless addition, since "opinion is false when not confirmed by the senses," and not to contradict is by no means the same thing as to confirm. He should have added: "when not contradicted by the senses, and when formed by anticipation, opinion remains probable only." But we need not dwell further on a slight defect, especially when we remember that the canon is known to us only by quotations and summary letters preserved by Diogenes Laertius.

By proclaiming that sensation, either immediate or retained in the memory, partial or generalised by anticipation, is the source of

all knowledge; that reason and ratiocination are nothing but applications of acquired experience, and proceed themselves from sensation; lastly, by directing observation on its true path, it cannot be too often repeated that Epicurus laid the foundations of the experimental method. There can be no such thing as science apart from the rules laid down by him. The many errors committed by him in following them, so far from vitiating, actually confirm these rules, since such errors are at variance with them. The one decides on the value of the other; the rules check opinion, detect and rectify error; nay more, they account for, and in a sense justify, error. Epicurus erred, and could not fail to err, because in his days anticipation—acquired experience—was very defective, because the instruments of observation, by which the range of the senses has been gradually enlarged, were not yet available to direct sensation. In the fourth century before our era there were no physics, chemistry, or physiology worthy of the name, and it was by the application of the rules of Epicurus that these fundamental sciences were constituted.

Against Epicurus two charges have been made which call for a reply. He was ignorant, it is said, and he despised science. So ignorant was he that he overlooked various astronomical opinions verified eighteen hundred years after his death; hence, he was not even abreast of the knowledge of the day. So indifferent was he to science that he wrote: "For us it is enough to know that this order (of the universe) is by no means the effect of a formidable providence, *that it may be accomplished in many ways with which we are not at all concerned, but none of which is to be feared.*" But we are not ignorant because we overlook or reject premature hypotheses. Nor are we indifferent to science because we remain wisely indifferent to possible solutions, neither contradicted nor weakened by direct sensation and acquired experience.

"Every special science has for its object the discovery of the truth on a given point. Philosophy compares the results obtained, and from them induces certain principles which guide her in the general conception of things. A few fundamental certainties, the constant observation of certain facts, even when badly explained, are suf-

ficient to enable her to affirm or deny in the principal questions. She is ready to record all further experiences, but she knows beforehand that they must be made in conformity with the general plan and method. They become for her of a secondary importance, modifying the details without shaking the whole edifice. All is thus ; all might be otherwise. But every solution will necessarily agree with this general law induced from known phenomena : all phenomena are natural ; they proceed from causes, either known, or which may be known, but none of which will ever imply the intervention of a rectifying will.”*

What could be more correctly stated ? Let us add that in the passage just quoted, Epicurus is exclusively a moralist. His exclusive aim is to expel superstitious terrors from the heart of man, the caprice of the gods from the universe. Sensation and acquired experience dispel these phantoms and the end is attained. A clean sweep having been made of such idle fancies, ethics stand henceforth on a safe foundation. Such is the sense of the expressions that have been so unfairly criticised.

But Epicurus is not exclusively a moralist, as has been insinuated. We shall even see that ethics are the weakest point of his system. He is above all a contemplator of the universe, an investigator of nature, into which he penetrates so deeply that one finds a difficulty in following him. Universal motion, the plurality of worlds, the mechanical combinations of the elements, the waving motion of the solar light, spontaneous generation, vital competition, selection, descent, the succession of human industries, of stone, bronze, and iron—such are his affirmations, his legitimate hypotheses, his titles to fame. In all this, where is there the pretended contempt of science ?

The first contact, the first glance, suffices to affirm, without any possible or useful contradiction, that bodies exist, that these bodies present diverse forms and parts ; that they increase, become disintegrated, dissolve, incessantly change the substance that they lose and gain : that amongst these aggregates of material particles, some appear inert and insensible, others vegetative, self-moving, sensitive,

* André Lefèvre, “De Rerum Natura,” Introduction, p. xii.

living; that the individuals of this class, grouped in hereditary series, are born of their like, but live only on the condition of incessantly absorbing matter borrowed from surrounding objects, and die at last, that is to say, are dissolved, though the elements composing them are not annihilated; that as far as our steps and our gaze can reach they meet with nothing but bodies and matter attenuated or condensed—such are in like manner some of the immediate certainties, and legitimate elements of *anticipation*.

When Epicurus teaches that nothing exists except bodies, that nothing of what exists can be born of what does not; that nothing, unless it be a body, can touch or be touched, that all bodies are composed of particles common to all, that vegetation and life are manners of being relative to certain combinations of particles, natural and transitory states of material aggregates, that there is neither sensation, memory, nor thought apart from living bodies, he does nothing but epitomise acquired experience. From these and many other observations he rises to inductions to be either confirmed or refuted by fresh experience, and so he finally proposes a general conception of the universe.

Bodies are not divisible *ad infinitum*. The aggregate which we call *matter*, is composed in its ultimate analysis of extremely minute *corpuscles*, countless in number, indivisible, simple, eternal, endowed with diverse forms, self-moving, according to their nature, form, and weight, ever coming together and associating with each other, or else breaking asunder and resuming their individual forms—such is the theory of Democritus. Epicurus adds that the course of these atoms (which he improperly calls their *fall*, since even for him there is neither high nor low in the universe, though there be in our world), although a course sensibly parallel, nevertheless deviates somewhat from the straight line, but for which no contact would be possible. Atoms have an inclination, which inclination, strangely associated by Lucretius with the relative freedom of human locomotion and will, has enlivened the sarcasm with which it has been assailed. In fact it is nothing else than the affinity and the wave-motion so indispensable to our chemists and physicists.

The atoms are combined in molecules, which in their turn are

grouped in elements, such as air, fire, earth, and water, which act towards each other in accordance with the properties inherent to the parts of which they are the aggregate. Fire, the lightest of bodies, tends upwards; it constitutes the stars, igneous bodies fed by the fires scattered throughout an ethereal zone, where they turn in fixed orbits, according to laws which Epicurus necessarily tries in vain to determine. In the end he rests satisfied with a reference to the various explanations which to him seem probable. His astronomy is neither more nor less puerile than those of Xenophanes, Plato, Aristotle, or Zeno. He is justly reproached with appealing to immediate sensation on the question of the size of the heavenly bodies, when a sufficient *anticipation* would have justified him in comparing the sun, for instance, at least to the Peloponnesus, and even to the earth itself. But these are very secondary defects for the epoch in which he flourished, and we should remember that four centuries have not yet elapsed since they have been rectified. *

The air he places beneath the fiery element, while the centre is occupied by water and earth, upheld by unknown masses, possibly by an inferior air. Here the teaching is vague and weak. At times it seems to foreshadow gravitation, centrifugal and centripetal force; but in most cases it becomes a prey to an incomplete experience, which, till the time of Copernicus, constituted the so-called *sensus communis*, or general consensus. Epicurus meantime pronounces emphatically against the antipodes.

The elements have been detached one from the other progressively. Our world has been a prey to chaos; it had a beginning and will have an end. But it is not alone in the universe. The motion of the atoms must needs have elsewhere produced, if not similar, at least analogous results. • Countless vortices, the germs of other worlds, never cease to arise, to acquire consistency, to become dissolved, in accordance with eternal motion, impassible and inevitable.

But the universe itself, the incalculable aggregate of worlds and of atoms, is alike imperishable and changeless in its principles. Nothing can be conceived beyond it; nothing can enter, nothing depart from it. The universe is infinite. But there is here no

question of a metaphysical infinite, apart from what it contains, endowed with individual qualities, with a general conscience and will. The infinite of Epicurus is nothing but an epithet; his absolute is merely a neutral expression—the indifferent sum of all things. The universe is composed of finite atoms, of finite combinations, of groups each endowed with distinct properties as regards their complexity and their organism. The more complicate are resolved in the simpler, since they partake of their nature, since all proceed alike from motion. But the countless steps, leading from motion to life, from the atom to the intelligent organism are never retraced. Life and intelligence remain where they are—in the animal order. In the universe there are living and intelligent bodies, but the universe itself has neither life nor intelligence. The part is contained in the whole; it is subordinated to the laws and properties of all the elements whence it results; but it has its own special laws and properties, which are incommunicable, which are not imposed on the other parts of the whole, still less on the whole itself, which is but a word, a summing up. The universe has no more actual existence than nature, matter, the number one hundred, or one hundred thousand, or a hundred billions of trillions. Nothing exists except atoms and bodies composed of atoms.

Nevertheless Epicurus, as we know, admits yet another reality—the void, the absence of all quality, of all substance, “a free and pure medium” in which the atoms gravitate. At first sight this reality of the absolute non-existent seems contradictory, and it might be asked whether it was an involuntary concession to the metaphysicians. In the mind of Epicurus it was by no means meant to be so taken. Immediate sensation revealed space to him, while a defective system of physics showed him the necessity of the void. Did not motion need a place wherein to move? And how explain the densities and volumes of bodies, unless a void, in various proportions, interpenetrated the atoms and tissues of things? These questions are not lacking in importance. The last has forced on science the hypothesis of the ether—imponderable though material—which plays the very part of the void of

Epicurus. For us space is no longer anything more than the distance, relatively to our senses, intervening between one body and another, and the place occupied by bodies, abstracting from the consideration of their substance. Since everything is a body, from the ether to platinum, space ceases to be anything more than a quality of bodies, a relation such as number and measure. There is no reality except in bodies. In the same way time, the place of events, has no reality except in the facts. Epicurus understood this, and Lucretius wrote: "Time in itself exists not."

Still, as regards the void, the question remains intact. Is it merely relative, as in our pneumatic tubes? Or is it absolute? Should physics prove it to be so, it must needs be admitted.

Such as it is, the conception of the universe, as expounded by Epicurus, is the most comprehensive and the clearest bequeathed to us by antiquity, and taken as a whole it is also the truest. In it we perceive, as in a vigorous sketch, all the outlines of the modern conception. That of our world, the earth, and of man is no less clear and admirable.

Omitting the stars, as beyond our scope, beneath the ethereal and igneous zones he places the air, "which we call the firmament," incessantly traversed by the light, and invaded by the evaporations from the seas and the rivers. The absolute amount of the waters is always the same, and the permanence of the sea-level is secured by the loss and recovery of the watery particles drawn up by the solar heat. The winds are the atmosphere agitated by the motion of the vapours condensed to clouds, hardened to snow and hail, melted to rain. The rainbow is a decomposition of the luminous waves reflected by the aqueous particles of the clouds. Waterspouts are produced by the currents contending with the clouds. Lightning is the conflagration of the air caused by the friction of the clouds; thunder and lightning are two aspects of the same phenomenon, and start simultaneously from the clouds rent by the inflamed air. We see the one before we hear the other, because light travels much more rapidly than sound. The volcanic eruptions are produced by the air and fire pent up in certain underground cavities, generally in communication with the sea. The

miasmas of swamps and caverns engendering endemics, the climates, the changes of temperature, are in like manner the effects of the same natural agencies.

The terrestrial forms, mountains and valleys, simply mark the stages of the receding waters, which covered the earth after the departure of the fiery and watery elements originally confused in the vortex whence issued our world.

Vegetable and living beings have sprung up wherever were found the conditions necessary for their existence, plants first, then animals that feed on them. But nature did not all at once realise permanent forms and fixed species; these were preceded by endless tentative essays. The better-endowed organisms alone survived in the struggle for existence, transmitting by continuous reproduction the inherited qualities that constitute the types of races. Man appeared the last. During long ages, dwelling in caves and forests, he fought for supremacy with his nails, with sticks, bones, or stones. As yet he knew neither family, society, nor justice, force determining sexual unions, life and death. When the possession of herds awakened the idea of property, when the interchange of articulate signs developed the formation of languages common to a tribe whether nomad or settled in some fixed region, a few simple contracts, whether implied or explicit, began to regulate the relations of men, introducing the still extremely vague notion of justice and injustice. The necessity of making arms, utensils, clothes, knitted, sewn, or woven, prepared the way for sedentary life. The hut replaced the cave; then came the strong house, centre and watch-tower of the field, harbouring the things that man had acquired to himself—women, children, flocks, arms, skins, and clothes.

The great event of those remote ages was the discovery and use of fire. The hearth, creator of the arts and of civilisation, became the hallowed centre of the family; woman became its guardian, passing from the position of female and mother to that of spouse, consort of man, mistress of the house. Manners were softened; the tribes fixed in rural towns sheltered by walls became skilled in the cultivation of barley, wheat, such cereals as could by fire

be converted into food henceforth secured to the community. Society was now founded. Doubtless the weak were still for a long time sacrificed to the strong; but there already existed true laws, a private and a public life. Assemblies decided points of dispute; and chiefs, either chosen, accepted, or submitted to, entrusted magistrates with the execution of the laws.

Epicurus, as Lucretius shows, verified the succession and the vicissitudes of the political forms, but he did not study their organism. They remained indifferent to him; and this is a serious gap in his moral system. Like Zeno and like Jesus, disgusted with the vices and the instability of social institutions, he applied himself altogether to the welfare of the individual. But we must first resume his physiology and his psychology, which he does not keep distinct.

Man is an animal endowed with senses, and in whom the sensations fixed by language awaken ideas, excite reflections and reasoning powers. His body, which constitutes his whole personality, is, like all other bodies, a combination of atoms. Its members and the organs of the senses were not bestowed on him with a view to the use he might make of them; the organ preceded its function. Man found himself furnished with hands, and after long essays he acquired the prehensile faculty; with feet, and he learned to walk; with a larynx, and he uttered articulate sounds; with eyes, and he saw; with ears, and he heard. The sensations, in their ultimate analysis, are reducible to the sense of touch; those that do not seem direct—sight, hearing, smell—are produced by intermediate causes, by material images or impressions emanating from the extreme outlines of the objects. Hovering in the air, condensing or dispersing themselves according to the distances, these objects become amalgamated or dissipated, come at last in contact with the senses, and communicate to them a shock transmitted by the nerves to a sixth or internal sense. This *common sensorium* is the soul, a subtle substance, made of fire and air and of some other still more subtle element, diffused throughout the whole body, since all the members are endowed with sensation, but concentrated in the breast about the region of the heart

—the seat of fear, hope, desire, will, the passions and affections, no less than of intelligence, reason, and judgment.

Man is born and dies, like all other forms and combinations. Death reduces the elements to their first and eternal atoms. The soul vanishes like smoke in the air. Were it to remain entire it would still be separated from the conditions of thought and personality. For it is a member of the body, in which it is formed, grows and decays. It is no more man apart from the body than is the body apart from it. Deprived of the organs of the senses it ceases to possess sensations, and with sensation vanish intelligence and reason produced by it. Hence, after death, man is what he was at his birth—nothing. Beyond the grave there are neither terrors nor hopes, no posthumous rewards or punishments. The Elysian fields are here below, in the serenity of the wise man; just as Orcus lies in the heart, in remorse. Immortality is a chimera suggested by the memory of the dead and by the beloved shades that haunt the dreams and fancy of the living.

These views are set forth with a magic splendour in the third book of Lucretius, or, rather, are diffused throughout the whole poem. Certain physiological inaccuracies cannot detract from their logical consequences. Nor would it be reasonable to exaggerate their shortcomings when we remember that the anatomist's knife and the microscope were alike beyond the reach of Epicurus.

It will be readily admitted that there are no images emanating from the contour of objects; at the same time there are motions or undulations which fulfil the same function; and all these images, placed by Epicurus outside of the body, exist in the brain, accomplishing their work in the complicate cellules of its gray cortical substance. Not the causes but the results of the sensations, they none the less regulate the play of the so-called intellectual faculties—memory, reflection, abstraction, reason, will.

Nor is there any special aggregate called the soul, whose guiding energy resides in the breast. The soul is but the result or outcome of the impressions transmitted by the nerves to the brain; hence is all the more decidedly mortal. Moreover, if the theory of Epicurus be transposed and translated into modern language, it

will be found as near to scientific truth as the hypothesis of images. For this purpose it will be enough to overlook a false localisation, to substitute one term for another—that is, the nervous substance for the soul—and all will be in accordance with the truth. And what else is the soul, as conceived by Epicurus, except this very substance diffused in countless fibres throughout all the members of the body by means of the great central ganglia sustaining and governing instinctive life; by means of the cerebral mass surrounded by its sinuous folds and convolutions, concentrating itself in memory, thought, personality?

Hitherto the gods have not appeared on the scene, everything having been accomplished by the atoms, whose motions, forms, weight, affinities, and combinations build up, take to pieces, destroy worlds or beings with equal indifference, irresistibly and inevitably. No divine caprice or providence is capable of disturbing the order of nature. If the divine will be identical with the laws of the universe, it plays a double part, and is naught in itself; for the universal laws themselves are nothing but the succession of facts as verified by our organs. The gods are the inventions of ignorance and of terror, at times symbolical explanations of certain natural phenomena. Such phantoms are dispelled by science and the study of nature. The fear-inspiring head of the gods henceforth ceases to cast his shadow on the earth, and free thought, piercing the ethereal realms opened up beyond the fiery zone of the constellations, embraces the immensity of the universe.

The godhead, whether one or many, has no place in the system of Epicurus; but its hold on human institutions could not be radically contested without personal risk. Hence Epicurus left them life, and even bliss, disarming them only of their thunderbolts. Henceforth harmless, free alike from all cares and functions, from all desires or hatreds, they enjoy the honours due to their rank and their empty state, where we know not, unless it be perhaps in the *intermediate worlds*, or spaces separating the vortices from each other. After all mortals have grasped the idea of the gods, the soul may well, indeed should, entertain it, receiving it, like all other ideas, from images implying the existence of bodies.

In a word, the gods will be so far useful. Therefore let them continue to dwell in their supreme and peaceful abodes, released from the otherwise well-founded reproaches arising out of the defects of the world and the evils of life, inaccessible alike to the thanks they have not deserved and the vain supplications they cannot hear. They have done naught, for nature has been self-sufficient.

The astounding irony of this pitiful respect—so disagreeable to the pious philosophic mind, which is reluctant to smile, so entertaining to the disenthralled mind—never for a moment deceived the shrewd and caustic Athenian wit. It was aimed only at the vulgar herd and at sacerdotal susceptibilities; and its end was achieved, for it enabled Epicurus to escape from those charges of impiety which awarded the poisoned cup to Socrates and Prodicus, shipwrecked Protagoras, and banished Aristotle.

The gods are thus set aside. No more miracles, oracles, sooth-saying, genuflections, or litanies. Death is deprived of its mystery. No more three-headed Cerberuses, or Acharontic ferrymen. Henceforth there is nothing but the real, living man face to face with impassible nature. What should he do? Make use of his organs, develope his faculties in the shifting scene circumscribed and swayed by the inevitable course of nature. He will find happiness in the judicious employment of his energies; in the enjoyment of all harmless pleasures; and especially in that derived from science, justice, and virtue. Such is the conclusion of the philosophy of Epicurus. Of this we are assured both by the aphorisms preserved by his biographers and by the example of his pure and noble life. It matters very little that his precepts have been variously interpreted by his disciples; that several of them awarded too large a share to the baser gratifications; that the name of Epicurean, perverted, like that of Materialist, from its true meaning, has been usurped by the advocates of the most opposite doctrines. There are other and far more serious charges, such as were already incurred by Stoicism, and from which the ethics of Epicurus could scarcely escape. His teaching forms but one half only—and that incomplete—of a moral system. It is mutilated, and while constituting an

imperfect guide for the individual life, it says nothing and knows nothing of social life.

We have pointed out the obstacles that detained Epicurus on the threshold of politics. The miseries of the badly-balanced Athenian democracy, the disastrous struggles of unbridled ambition, the decadence of Greece, the sad foreboding that a farseeing mind might anticipate from the triumphs and conquests of Alexander, filled the soul of the philosopher with weariness, and he withdrew from active life, wrapping himself in the strong mantle of a serene mind,

Devoid of hate, devoid of strife,
Devoid of all that poisons life,

beyond even the stoic *ἀραξία* and apathy, those prototypes of Christian resignation. He recommended abstention from all public duties; insisting, as much as Jesus himself, on submission to the powerful when expedient, and so far no doubt as might be compatible with personal dignity, but still as a wise concession to the lesser annoyances of life.*

The adversaries of experimental philosophy have hailed with undisguised pleasure this moral shortcoming, pretending to see in it the perfectly legitimate consequence of a system based on interest and the search for individual happiness. Blinded by their ill-natured prejudices, they have been fighting with shadows. The weak point of the Epicurean ethics is to be sought for elsewhere. So far from being in accordance with, they actually detract from, his general system.

Whatever be done or said to the contrary, interest, whether particular or general, will ever be the sole foundation of justice, the true starting-point of morals, of right and duty, as happiness will ever be their end. It is on the question of interest that Epicurus erred, on the employment of the human faculties, on the very application to life of a system based on the motion of all the parts in an impassible whole. He failed to perceive that action in every direction, in all spheres—that action, the law of existence, is also the law of life. He who so ably explained the origin of society

did not see in the social state the form of all civilisation, and in the political organisation the necessary condition of individual development. That peace of mind, which he achieves by his own efforts, is not without its value, and has also its proper sphere. It becomes the decline of life, for it encroaches on death, on the repose of extinction. But it cannot be the proper condition of the young, adult, or mature mind; and if it is to lawfully intrude during this period, it can only be on the plea of relaxation or repose, in which the wearied energies recover strength to resume the battle of life. Else what good would there be in life itself? This very question, Is life worth living? has been proposed by the Epicureans as well as by the Stoics, and more than once solved by them with suicide.

It might almost be said that the apostle of the sublime pleasures took for his ideal the ironical beatitude of the gods relegated by him to the "inter-worlds," gods who do nothing and are nothing. From a pleasant fiction, an episode of his philosophy, he drew conclusions falsified by reality, absolutely rejected by experience and natural science.

But it does not follow that, because incomplete, the Epicurean ethics were also a school of vice, as is so constantly asserted. Within the sphere embraced by it, the system pursues a straight and wise course. It differs in the end from the so-called spiritualistic systems only in being more humane and more probable. A strange idea must be formed of good faith in order to reproach with immorality a philosopher who places pleasure in virtue. "We cannot be happy," he says, "without practising virtue, and whoever practises it is happy." In his treatise on *a happy life* and in his letters to Lucilius, Seneca does Epicurus full and ample justice. It is to be regretted that a similar course has not been followed by the frivolous opponents of the experimental method.

Systematic efforts have been made to depreciate a school which continued to flourish with distinction in Athens down to the time of Augustus, and which, sharing with Stoicism the direction of the intellectual world down to the triumph of Christianity, includes amongst its disciples the names of Lucretius, Horace, Virgil, Seneca.

the tragedian, Pliny the elder, and the two Celsi—the famous physician and the author of a celebrated treatise against the Christian religion. After the long night of the Middle Ages, the line of Epicurus reappears with Gassendi, and through Hobbes, Diderot, Buffon, Helvetius, d'Holbach, Condorcet, Lamarek, La Place, Cabanis, Auguste Comte, Moleschott, Büchner, and *La Pensée Nouvelle*, has been continued to the present day.

The disciples of Epicurus were reproached by their contemporaries with adding nothing to the teaching of their master. It was forgotten that it could be added to by science alone, and that science is not yet three hundred years old. Now that the discoveries of experience have filled in its outlines, made good its gaps, rectifying errors, confirming intuitions, its feet firmly planted on the earth, its head mounting to the heavens, fathoming in thought the infinite little and the infinite great, governing the world by steam and electricity, she rises triumphantly above the wreck of religions, while metaphysics in retreat, reduced to the shadow of a name, fail to find a refuge even in the inter-worlds whither Epicurus relegated the gods.

We shall have now to follow in its downward course the current of ancient thought, expatriated to Egypt and the Roman world, disturbed by the intrusion of oriental mysticism, swallowed up in the chaos of the Middle Ages. The comparatively enlarged exposition of the principal systems elaborated by the Greek mind having so far simplified our task, we shall be able to traverse more rapidly a path on which we shall meet with none but ideas already familiar to the reader. After twenty centuries of Plato, Aristotle, Zeno, Epicurus, and Pyrrho, we shall be able to devote less space to chronology and more to the classification of the groups inspired by more ancient schools. Three divisions in the order of time will suffice for our purpose: a period of about five centuries (250 B.C.—200 A.D.), during which are still felt the echoes of the Academy, of the Lyceum, the Porch, &c.; an epoch of three or four centuries, during which they became confused with a mystic pantheism, parallel with the monotheistic mysticism of the Christians; lastly, after an intellectual interval or

interregnum, the scholastic age during which the Church holds in leading-strings a sham Aristotle, restored to the world by the Arabs.

This will thus bring us to modern times, when we shall behold philosophy begin its work afresh with new Democrituses, new Aristotles, with lesser Platos, and even with revivers of Parmenides, Pythagoras, and Pyrrho, ending at last, in spite of countless fluctuations, in a mixture of Epicurus and Zeno. For, without straining analogies too far, it is impossible not to recognise a certain general harmony between the two cycles of thought. Twice Christianity cut the thread of the labyrinth; twice man has retraced the same route, entering by the same approaches, and arriving at the same goal—scientific materialism. Such is the philosophy of philosophies.

CHAPTER III.

INTERMEDIATE PERIOD.

§ 1.—*Decadence of the Greek Schools—Third Academy—Neo-Pyrrhonic System—Roman Stoics and Epicureans.*

GREEK philosophy was from the first overshadowed by the crude conceptions of oriental anthropomorphism. The half-conscious efforts of human thought had created an intellectual bias, during the course of ages weaving an elaborate tissue of snares and meshes, in which every inappropriate metaphor, every strained analogy or false idea, added some fresh thread to the tangled web. There resulted a network of error so intricate that humanity still struggles in its toils, wandering from myths to entities, from religion to metaphysics, incapable of once for all rejecting this *damnosa hereditas*—this robe of Nessus clinging to its limbs and to the very brain itself.

The Ionic school had with great difficulty shaken it off, though not without often suffering from its contagion, and at every step

leaving behind some one or other of its direct or indirect disciples, such as Pythagoras, Heraclitus, Anaxagoras, Plato, and even Aristotle and Zeno, all more or less enveloped in the folds of the fatal heirloom. Nevertheless, guided far more by an intuitive sense of the true method than by a competent knowledge of the reality, this school had, if not marked out, at least opened the true way. Anaximander, Democritus, and lastly, Epicurus, making a clean sweep of the superstitions of ignorance and the chimeras of reason, had in their place established the universe, things, beings, and men, such as they are or could be recognised. With these materials they had built up an edifice, many of whose necessarily temporary sections were destined to fall to pieces, but the lasting plan of which supplied a solid framework for experience.

Science might reveal itself at any moment, but it was not yet born. And it was at this critical point, while the majority of cultivated minds were still struggling with the combined coils of metaphysics, mysticism, and credulity, that the ambition of Alexander exposed the vacillating intellect of Greece to fresh contacts with the manners and ideas of inferior races, whom she had so far, but still only so recently, outstripped. The trial was all the more dangerous that these decrepit peoples—Egyptians, Syrians, Persians, Jews, Chaldeans, Brahminical or Buddhist Indians—for the most part superficially Hellenised and ready for apparent amalgamation, had not really kept pace with their conquerors, or, rather, had in fact retrograded. Philosophy, still divided, incoherent, and, in the absence of science, powerless to decide upon the great issue between the rationalism of Aristotle and Plato, and the materialism of Epicurus, found itself once more contending with the same oriental dreams that it had already so laboriously yet incompletely dispelled, with those religions that had burdened it with metempsychosis, the immortality of the soul, the endless family of the myths of fire, the ethereal entities, the gods and the divine, but still worse, with those religions in a degenerate and enfeebled state, and varnished over, so to say, with a thin coating of metaphysics.

If to the confusion arising out of Alexander's conquests we add

the chaotic unity brought about by the Roman sway, we shall easily understand the inevitable decadence of a rationalism which had spoken its last word ; the necessary compromises with the poor mystic theories of Egypt, Judæa, and Syria ; lastly, the sudden arrest and deviations of materialism. For about two centuries no fresh element of any value was added to the philosophic conception of the universe. No doubt learned works, and even discoveries—or rather hypotheses—in astronomy were multiplied, but without being utilised, without being grouped about a common centre of unity. The old schools continued to vegetate and to ramify, either at Athens, where they had been originally founded ; or at Alexandria, the second great intellectual centre of the world ; or at Rome, pupil and heir of Greece ; or in some other corner of Europe, Asia, or Africa. They were diffused without either increasing or progressing. They lived on themselves and their past reputation.

They lacked neither talents, nor virtues, nor literary splendour, nor moral influence. But this period of their existence belongs rather to history and criticism. It is almost a blank as regards ideas, with which we are here exclusively concerned. Hence a rapid summary will meet the justice of the case.

The probabilism introduced into the Academy by Arcesilaus (Plato commentated by Pyrrho !) found a brilliant expositor in Carneades (215–130), the indefatigable opponent of the exuberant Chrysippus. When Athens sent, as envoys to Rome, Diogenes the Stoic, Archelaus the Peripatetic, and Carneades the Academician, it was the vigorous and persuasive eloquence of the last-named that exercised the greatest influence on the Roman youth. We know that Cato the elder hastened to get rid of these guests, whom he regarded as dangerous to the old-fashioned ignorance and superstitions of the Roman patricians. Carneades, a moderate disciple of Pyrrho, denied the possibility of proving the objective reality of human knowledge, and the subtle Stoics found it difficult to hold his own in an idle discussion.

After Carneades mention occurs of Philo of Larissa, who also taught this vain and barren system of dialects and metaphysics in Rome ; and, of his disciples, Antiochus, who taught successively in

Athens, Alexandria, and Rome. Both endeavoured to overthrow the probabilism of Carneades and to revive the old Academy. This moderate and respectable school, which was compatible with an active life and the management of public affairs, was followed by Cicero, the Roman statesman, orator, and philosopher. Endowed with a liberal mind, though easily influenced by brilliant common-places, Cicero wrote much, both wisely and usefully, on the various philosophic systems. He was, strictly speaking, an eclectic in the better sense of the term; and if he inclined to one school more than to another, it was to the least dogmatic and most pliant. From his writings posterity has derived a fairly impartial and detailed account of the philosophic struggles and the average wisdom of his times; of that *common sense* which changes from age to age, and which, as the result of accumulated prejudices no less than of acquired truths, is the principal rule of practical life, of ethics.

Cicero himself confesses that the new Academies (third and fourth) did not hold the first place in the Græco-Roman world. On the universe their teaching was vague; on man they limited themselves to a sensible and pure moral code, in accordance with nature and society, but based half on experience, half on an *à priori* metaphysical system. But man is partial to definite conclusions; and if it is to be a question between doubt and doubt, he will still prefer pure scepticism to a sham probabilism. One *Ænesidemus* will always be worth a hundred Carneades. But positive doctrines, be what they may, will also over carry with them more weight and influence than negative systems. Hence the New Academy merely vegetated, while the Porch and the school of Epicurus triumphed. The one—recommended by the virtues of Panætius, master of Scipio and of Lælius, and by the scientific tendencies of Posidonius (135–59), admired by Cicero and even by Horace—was destined to mould the greatest of Roman citizens, Brutus, Cato of Utica, Thraseas, Helvidius, Cornutus, Persius, and reckoned amongst its adherents Seneca, Epictetus, Marcus Aurelius. The other, brought to Rome and professed by Amasianus, Rabirius, Cælius, there found its most famous representant, Titus Lucretius

Carus. His conception of the universe and of life was universally accepted as a whole, even by those who criticised its details. His enlightened and incisive atheism was little calculated to displease minds wearied with superstitious rites and ridiculous ceremonials, "as by law established." Pomponius Atticus, the friend of Cicero, Cassius, Cæsar, Lucius Torquatus, Virgil, Horace, Tibullus, were all more or less steady followers of Epicurus, as were also Seneca the tragedian, the great encyclopedist Pliny the elder, the biographer Diogenes Laertius, and Celsus the successful opponent of Christianity. Among the allies of this school must be included the atheistic rationalists of the Aristotelic system, as well as the positivist sceptics, successors of Pyrrho; for the vigorous and decisive criticism of Ænesidemus (first century of our era) has no philosophic value except as preparing the way for materialism.

Emile Saisset has given us an excellent monograph on the doctrine of Ænesidemus, as preserved by the sceptic Sextus Empiricus. A native of Gnosus, this subtle Cretan, who taught at Alexandria, had, like his master Pyrrho, taken his stand at the entrance to philosophy and on the very threshold of metaphysics, the emptiness of which he exposed by vigorous arguments, all the more interesting that they have been revived by Hume, Kant, and Auguste Comte. It is surprising to see how he destroys the idea of cause, that famous criterion of truth, and with it all absolute ideas of ethics, while reducing to its proper verbal function the theory of demonstration.

Ænesidemus holds that in nature nothing is perceptible except antecedents and consequents, phenomena whose accidental relations involve no necessary dependence of any sort, still less any relationship of cause and effect. The idea of causality he regards as purely human and anthropomorphic.

Agrippa, one of his successors, lands metaphysics in five progressive and unanswerable difficulties: the *contradiction*, which denies purely and simply the assertion of an assumed principle; the *progress ad infinitum*, which vainly endeavours to prove a given principle by another of a more comprehensive character; *relativity*, from which no axiom escapes; the *hypothesis*, to which are

reducible all undemonstrated assertions ; lastly, the *vicious circle*, which relies for its proof on some unproved principle.

This doctrine of his predecessors is summed up and defined by Sextus (about the third century), who was an empirical physician—that is to say, one who contended with morbid symptoms without losing time in speculating on the cause of the disease. His views are embodied in the two words that have survived from his pen—"Pyrrhonic Hypotyposes" and "Against the Mathematicians."

According to him, the Pyrrhonist agrees neither with those who, like Plato, Aristotle, or Epicurus, think they have discovered the truth, nor with the probabilists, who deny the possibility of discovering it. Without asserting or denying anything on this point, *except the equal value of the contrary theses*, he limits himself to the study of appearances—the observation of phenomena. He does not destroy metaphysics, as he supposes, but simply sets them aside. Here we have the convenient but insufficient dogma of the positivists. But the critique of Sextus and his modern successors goes much farther than they intend or fancy. Sextus carefully examines the ten categories of Pyrrho, Agrippa's five tropes, the eight arguments of Ænesidemus, which may be summed up in one word—*all is relative* ; nothing is necessary or absolute. We cannot here enter into the discussion, often ingenious enough, to which he subjects logic, physics, ethics ; and we are very far from endorsing all his opinions. But there is one metaphysical idea, that of God and Providence, against which he has grouped a series of unanswerable dilemmas and trilemmas.

"Whoever admits a God—one thing of three—he either believes that the providence of God is extended to all things, or to some things only, or else he admits no providence. Now, if the providence of God is extended to everything, there would be neither evil, nor vice, nor imperfection in the world. Then, if it be said that it is extended only to certain things, the question arises, Why to some rather than to others ? I ask, moreover, whether God can and wishes to see to all things, or whether he wishes but cannot, or whether he can but wishes not, or lastly whether he neither can nor wishes !" In the first place, he does not see to all

things, since evil exists ; in the second, he is either powerless or wicked, or both at once, as the case may be. "We must therefore say that God concerns himself not at all with the world. But in that case how shall we know whether he exists ? We can grasp neither his essence nor his action." The use that Sextus makes of this well-known argument would alone suffice to show how far the positivist scepticism fancies that it differs from materialism. The one ends in negation, the other in abstention—suspension of judgment, *ἐποχή*. "Those who assert anything absolute concerning God cannot avoid the charge of impiety," it is nowadays asserted. "They overstep the limits of experience and of reason." It is difficult to see in what respect these cautious formulas differ from negation. We shall have again occasion to touch on this point in connection with positivist *agnosticism*.

It has been seen that the metaphysics of the Stoics were as feeble and incoherent as their ethics were strong, or at least imperative. But we must not be deceived even by the latter. Their theory of liberty and of duty is full of contradictions. It proclaims on the one hand the infallibility of conscience, the independence of the human will ; on the other, the divinity and excellence of sinless nature, obedience to the laws of the universe, and the absorption of the soul and of the human person in some unknown focus of life and wisdom, radiating throughout the universe. Yet in the name of liberty it violates, though vainly, the laws of nature, the passions—sole mainspring of actions ; and still in the name of liberty it suppresses moral freedom. If duty proceeds from a vague universal reason diffused throughout the universe, it has no longer for its basis the personal reason of man ; it is no longer the application of a free will. But the point need not be further urged. Ethics cease to be anything beyond a mere logomachy when duty is not based on right, right on interest, interest on want, want on the necessities of the individual and social organisms.

Doubtless, Stoicism was redeemed by the practice and teaching of virtue. Its ranks supported, and when necessary replenished by the hungry cynics—at once parasites and braggarts—filled in

the patrician families the position of chaplains and directors of conscience. This curious fact has been clearly proved by M. Martha. They worked unconsciously for the priest, for the Christian confessor; they prepared the way for him; but it is only fair to add that they played the part much better than he does. Their precepts were more manly and pure; they fashioned men, not bigots or drones. Many of their disciples braved the tyrant, defied pain, met death unflinchingly.

Death was indeed the last utterance of their wisdom, and by death they became the precursors of Christianity. This is in fact the great fault of their virtue. Their moral code was framed for the condemned and the hopeless, and it was said to be suitable to times when imperial despotism trifled with human lives. But this was saying too much, for meek resignation, or a haughty contempt of existence and its evils, are ever the best allies of tyranny.

Their writings are full of the finest, or at least of the most plausible sentiments, of the most sublime invectives against vice, baseness, and cruelty. Seneca, Dion Chrysostomus detest injustice, condemn slavery; but they neither overthrew despotism nor suppressed thralldom. Lawyers, such as Ulpian and Papinian, imbued with their teachings, while introducing equity into the codified jurisprudence of the Romans, consecrated the absolutism of emperors and the rights of the slaveholder.

The Stoic virtue was in very truth an effete and moribund virtue; fatal alike to the individual and to society. If, instead of opening his veins at the bidding of the tyrant, the philosopher had slain the lictor, if he had converted his house into a besieged stronghold, if he had stirred up the people to mutiny, if he had even taken to flight, he would have done more for the cause of freedom and justice. The collectors of apophthegms would have missed many fine sayings. The heroic replies of the slave Epictetus to his master under the torture, and the severe precepts of his *Enchiridion*, the touching mystic visions of Marcus Aurelius, would not have served as models of magnanimity to the martyrs, of renunciation to the author of the "Imitation of Christ," of unctuous sentiment to the preacher. But the Casars

would have trembled, and would have been hurled from their thrones.

The Stoic impassibility was no less barren than the serenity of Epicurus. Both theories, starting from a false conception of human nature and of society, ended only in lethargy and death. They delivered man, bound hand and foot, to the very oppression from which they thought to rescue him. Both of them produced sages and sublime individual characters; for if the Stoics had the advantage of dignity and asceticism, if certain Epicureans, wresting from their legitimate sense the precepts of their master, passed their lives in effeminacy and dissipation, both were found equal in the presence of suicide. The voluptuous Petronius knew how to die as calmly as Seneca or Arius. But both systems failed to mould citizens, and especially organised communities. Both had this feature in common, that they were addressed, not to the masses, but to the aristocracy and privileged classes. Hence they failed, and, as we shall see, surrendered the world to the Christian moral system, their sister and heir, neither better nor worse than they were, but which at least claimed to speak to all men, and which all men, to their misfortune and ours, were persuaded to listen to. This distinction has been very ably pointed out by M. J. Fabre, in his recent "*Histoire de la Philosophie*." (2 vols. Germer Beillière.)

Ethics are not the only point of contact between the otherwise too antagonistic teachings of the Stoics and Epicureans. The one sprang from Anaximander and Democritus—that is, from experience; the other from Plato, and in part from Aristotle—that is, from metaphysics; and they ended, one in a thinly-disguised atheism, the other in pantheism. But, if everything is God, God is reduced to nothing; for God is then no longer anything beyond a name for the universal. To deify nature, or the universe, adds nothing to it except an anthropomorphic illusion. Hence an identity is established between the two conceptions of the world, as well as between the two conceptions of life and death. In point of fact neither the one nor the other rescues the human individual from extinction. The absorption of the Stoic soul in the universal God

does not differ substantially from the return of the Epicurean soul to its first elements.

The two schools, in which all the philosophy of the ancients was resumed, thus arrived at the same conclusion—the utter destruction of polytheism. The one had so far the advantage of the other that it closed the door to deism itself; but as regards the gods, both might with equal readiness accept either the playful scepticism of Lucian, or the allegorical, or pseudo-historical system of Evemerus, the bold and paradoxical contemporary of Epicurus (311–298 B.C.).

§ 2.—*Græco-Oriental Philosophy. Neo-Pythagorean School: Apollonius Thyaneus. Neo-Platonism: Philo of Alexandria and Christianity. Alexandrian Theosophy: From Plotinus to Proclus. Theology: Augustine.*

In its Græco-Oriental, or Judæo-Hellenic period, philosophy ceases to be either an experimental or a rationalistic conception of the universe; it is in fact no longer philosophy. It becomes above all a mystic blending, a more or less incoherent *syncretism* of the last shreds of religious thought planted in the feeble Asiatic mind by the idle dreams of primeval fancy and ignorance, and recast as well as might be in the mould of Platonic metaphysics. In truth human thought now recedes some seven centuries, and all that the western mind is able to achieve is to transform the mythologies and polytheism to a *theosophy*, a science of the divine. The reality of things, of man and the universe, disappears, and nothing remains except illusion. It is in the name of this illusion and of dreams, of the useless and the trifling, that the guides of mankind—whether Alexandrian or Christian, those who defend and those who overthrow civilisation—are about to usurp the moral and intellectual, and, worse still, the social control of the vast herds called men, penned in the provinces, colonies, and municipalities under the imperial sceptre.

It has lately become fashionable to rehabilitate the Roman

Empire, to vaunt the administration and the *peace* of the Romans, to eulogise that premature cosmopolitan spirit of denationalised populations left to their local customs and routine lives. While the vanquished were amusing themselves with their petty magistracies and their narrow superstitions, the Cæsars, their obsequious senate, unscrupulous prefects, and swinish populace had leisure enough to feast and riot on the wealth of the nations, to gloat over the blood of beasts and men. At the worst, however, such a system was still preferable to the ensuing barbarous chaos wedded to catholic unity. It would at least have permitted children to grow into men; whereas the Græco-Oriental mythology preferred to reduce all humanity once more to a state of infancy. And this very simple-minded humanity to this day still thanks it for the degradation. It is even regarded as bad taste to question its moralising action, to proclaim too loudly that all progress has been achieved without and in spite of it. But we shall have to return more than once to the subject.

Meantime, to resume the chronological order, nothing is more decidedly opposed to the theory of peace and happiness under the Roman domination than the success of the Alexandrian mysticism and the triumph of Christianity. To what a depth of physical and moral wretchedness, into what an abyss of hopeless misery the subjects of the empire must have fallen to have thus taken refuge in the chimeras of hallucination and in the dreams of a life beyond the grave! What a degree of weariness, of exhaustion, and intellectual decay is implied by the acceptance of ridiculous or childish mysteries, of ideas vague as the ravings of fever! Degrading and lamentable spectacle! We shall have gradually to witness cultured minds entering into "the kingdom of the poor of spirit," placing all that still survived of their reasoning faculty at the service of a faith whose pedestal and capital are the impossible and the absurd.

The vicissitudes of this long mental malady are best illustrated by religious history and by exegesis. But the consequences it has left behind, the morbid germs it has deposited in the human mind—germs which modern science has not yet destroyed—have had

far too much influence on philosophy to allow of our omitting to summarise the principal phases, the development, and the progress of the contagion. The evil assumed two distinct phases, at first successive, then parallel, and lastly blending together. These were the Græco-Oriental and the Christian phases. The one begins in the first century, with Apollonius and Philo, closing in the sixth; the other begins some twenty years later on, with Jesus and Paul, triumphing in the fourth century, ruling without a rival till the twelfth, losing some of its vigour in the sixteenth, entering on its last struggles for existence in the eighteenth and nineteenth.

Apollonius Thyaneus was born in Cappadocia a few years before the Christian era. Behind the extravagance of his eulogist Philostratus, and the numerous marvels borrowed from another legend, one may recognise in this impostor a sort of literary Jesus, but formed independently of all Jewish influence. The adversaries of the Church began by opposing him to the Galilean; but the eclectic Alexander Severus, in his little shrine, placed him judiciously by the side of Moses, Abraham, and Jesus, while the Fathers of the Church, after having anathematised him as an envoy of the devil, ended by regarding him as a sort of precursor. He travelled much in Persia, Egypt, and India, and assuming the part at once of Magus, hierophant and Brahman, he naturally associated himself with the doctrines of Pythagoras, the most mystical and the greatest charlatan of all the Greek philosophers. He preached the immortality of the soul, providence, the efficacy of prayer, austere morals, which he seems to have conformed to in practice. He is the true forerunner of the spiritualists and electro-biologists. He had the gift of second sight and flattered himself that he could distinguish at a glance between a demon and a god. As he spoke all the languages, *without having learnt them*, he could converse fluently with the departed spirits of all nations. He cured all complaints, not to speak of insanity and death itself; and when about to be condemned as a magician, he vanished mysteriously from the world. It is related that he appeared to a doubter, and said: "Leave your doubts—the soul is immortal. . . . For the rest, in order fully to understand these

things, wait till you are no more;" and this was in truth the surest course.

Apollonius had his disciples, a host of worshippers; and pious heathens long kept his memory alive. "He was a god," they said, "who merely passed over the earth and is gone." But Lucian made him the butt of his sallies, and people began to feel almost ashamed at having included this miracle-monger amongst the philosophers. Yet how many others have since then usurped the name of sage and of god, whose Lucian did not appear till the eighteenth century?

While Apollonius was associating the tenets of the far East with the traditions of a fanciful Pythagoras and a false Orpheus, Philo of Alexandria, who flourished under Tiberius, was harmonising Plato with Moses. The Jews, already scattered throughout the Roman world in Antiochia, Ephesus, Thrace, and even the slums of Rome, where they began to swarm, had made a second home of Egypt. They had come hither with Abraham and the Hyksos; they had quitted it with Moses. Before bowing the neck to Assyrian, Persian, Macedonian, and Roman, they had been often subdued by the Pharaohs and annexed to the Egyptian empire. The era of the Ptolemies had again seen a revival of these ancient relations. In the reign of Philadelphus, a Greek translation of the Bible, the so-called *Septuagint version*, had rendered the Jewish books and Jewish thought accessible to the world; and in Alexandria, a very Babel of peoples and doctrines, a synagogue, almost rivalling the Temple of Jerusalem, served as a rallying-point for a compact mass of immigrant Israelites and converted Egyptians. But this colony could not remain orthodox. The influence of Hellenic thought, already perceptible in the "Bible of the Seventy," in the Book of Wisdom, had softened the rigidity, refined the simplicity of the Mosaic teaching, widened and subtilised the narrow rational monotheism. It was the Alexandrian Jews—Aristobulus, Philo, and others—who transformed to the λόγος or *verbum*, the Messiah vaguely prayed for by the prophets. Through them Plato became a forerunner of the Fathers of the Church, and the Christianity of the fourth Gospel, of Justin and

of Origen, is indebted to them for their metaphysics so entirely foreign to the spirit of Jesus. The Galilean contributed nothing but a legend, itself a mere revival of the myths of Adonis, of Sabazius, and of Serapis, and an incomplete moral system, spoiled by certain anti-social views. To the Alexandrian Jews must be traced that essentially Greek and Platonic philosophy, which by doing violence to its nature was accommodated to this legend and to this moral system. Christianity was built up piecemeal.*

Philo is so thoroughly imbued with Plato that it was wittily said : "*Aut Philo platonizat aut Plato philonizat* ;" "either Philo platonises or Plato philonises."

"For Philo," writes M. Joseph Fabre, "the law is a living being, of which the letter is but the body. Hence we must penetrate to its soul." (The letter killeth, the spirit quickeneth.) "The sacred records are a sort of mythology," of which the most scandalous are mere symbols of spiritual truths. Lot and his daughters thus easily become professors of virtue, and the Song of Songs a pious allegory. The cue is here given to all future preachers.

Philo is a Pantheist, as Paul will be in his turn; but he is also a monotheist. His god is infinite; he is nowhere; and naught exists apart from him. But he is also creator; he is at once pre-eminently impersonal, and the person *κατ' ἐξοχήν*. There is nothing surprising in these contradictions, common alike to Plato, Zeno, and Marcus Aurelius. On the one hand, they deny monotheism, on the other pantheism; but without them pantheism is but an expression superadded to the reality of the universe; without them monotheism is but a simple mirage of the human faculties projected into the infinite, independently of all reality.

God is therefore infinite and one; but his unity assumes three aspects—goodness that creates, power that preserves, and wisdom, the word mediating between goodness and power. Although this trinity is not yet composed of three *persons*, the word, the famous *logos* of Plato and Aristotle, is now no longer a mere metaphysical

* See M. Ernest Havet's "*Christianisme et ses Origines*"; J. L'Hellénisme.

entity. It has become "the Idea of Ideas, the supreme Type of humanity, Man in his divine essence, the Intercessor, the Interpreter of God," who sends him on earth. The just is the representation of God, "the benediction of all and the redemption of the wicked." It is divine grace that in us sows the seeds of virtue. Faith is not only superior to Hope and Charity, as well as to the four cardinal virtues; it is the most acceptable offering to God, since it is the worship, the acceptance of the Word. Works have not the acceptance of grace; knowledge, worship itself, are secondary to Faith. Life is an apprenticeship for death; hence must prepare for it by suppressing the passions. Marriage, perpetuating life, is a degrading necessity from which the elect must emancipate themselves. "Our duty is to humble the flesh, to torture it by every means and incessantly, in order to purchase redemption from bodily thralldom. Complete severance from the world, ineffable union with God, such is the supreme goal. Still the world being "a commonwealth ruled by eternal right," to actions and to beings must be applied the divine law; we must have before our eyes "equality, mother of justice;" raise ourselves by charity above the idle distinctions of castes, of classes, of nations; and admit aliens to the benefit of the common faith. Philo foresees the day when the religion of the True God, "attracting to itself whatever good there is in other beliefs," will gather all peoples at the foot of the same altars; "the day when a *universal pontiff*, while every priest prays for his community, will pray for all mankind, and will become, in presence of the creator, the organ of creation on its knees—*hallowed function, placing above all kings* the man called to exercise it." And Philo exclaims proudly: "We are everywhere; and everywhere Greek and Barbarian, Eastern and Western, become converts to us. To us belongs all the earth!"

Assuredly the Phariseans might justly maintain that the foundation of Christianity was the work of dissenting Jews and of Neo-Platonicians. Far superior to Jesus and to Paul, from the philosophic point of view, Philo is the true creator of Christianity, of which his doctrine is the emphatic epitome. The three leading mysteries, trinity, incarnation, redemption, grace, faith, salvation,

catholic unity, sovereignty of the church and pope, the complete edifice destined to be entirely built up from the fourth to the eleventh century, was already designed on the lines of Plato some fifty years at least before the name of Christian was uttered in the world.

But Christianity is far too complex a result to be referred to a single source, least of all to an exclusively philosophic origin. In order to become acceptable to the Gentile, it felt the necessity of adapting itself to the current ideas of the times; of grafting the Alexandrian philosophy on the tenets borrowed from the Persians by the prophets and pharisee doctors (Jesus, son of Sirach, Hillel, Gamaliel); and on its legendary history, put together in accordance with a few hints scattered through the Jewish records. All its dogmas, all its mysteries and ethics, were adopted second-hand; for it originated nothing, neither the immortality of the soul, nor justice beyond the grave, nor the dualistic conception of good and evil; neither angels, contemplation, unity of God, trinity, incarnation, redemption, detachment from worldly goods, nor love of our neighbour. Hence, in order to understand this hasty and confused patchwork of all the mythologies and of all the systems, the starting-point of its expansion, the principle of its vitality must be sought for farther back, and beneath all these clumsily-soldered accessories out of which it has built up a single system.

Christianity was above all a protest against an intolerable moral and social state, but a protest as radical as it was short-sighted. In the name of the oppressed, of the poor, and of the suffering masses, it hurled defiance, not merely at the defective science, but at all science; not at any given philosophical conception, but at all philosophy; not at a corrupt society, but at all society. It became the absolute negation of reason no less than of experience.

Hence it will occupy no further place in this work, except so far as it may have appropriated to itself some few kinds of philosophy, or else have run counter to the general progress of human thought. For we are otherwise little concerned with assertions either destitute of proof, or falsified by the most ordinary experience, with senseless theories, lacking even the element of plausibility; with precepts opposed to human nature and to social life.

A capricious God who takes pleasure in creating man in order to try him ; the very caprice of this God, his grace enthroned in the place of justice ; the cult of this God comprising all virtue ; the goodness of this God leaving to man the option of evil ; the vengeance of this God overwhelming man, from whom he has withheld his grace ; guiltless man stricken with an original fall, from which he is unable to recover, even by his very merits ; God sending a redeemer, his own son, who takes flesh in an embryo, conceived without sin by an immaculate mother ; this God the Son dying, though immortal, endowed with a perishable human nature, and yet co-eternal with the Father ; the Father and the Son united by another God named the Holy Ghost, who has been the father of the Son of the Father, and who, partaking of both, is co-eternal with both ; these three chimerical persons, perfectly distinct and diversely worshipped, yet forming collectively one and the self-same God, at once Father, Son, and Intermediary—the ravings of a diseased brain !

As to the immortality of the soul, rewards and punishments after death, the first and most persistent delusions of desire, born perhaps before all religion and all philosophy, and which man preserves like the plaything with which he amused himself as a child, this conception, so far from being a mark of superiority, is found amongst the lowest or least advanced races, such as the Redskins of the prairie, the Greeks of Homer, or our Keltic forefathers, and in the rationalistic or mystic doctrines of civilised peoples represents nothing but the traces of a remote past. It was no invention of Christianity, but Christianity, like Brahminism and Buddhism, drew from this doctrine the most disastrous consequences for human society, and had not the inherent force of organisation struggled against and triumphed over these consequences, it is easy to imagine what would have become of the industries, of the arts and sciences, ~~what~~ life being merely a preparation for death, labour a punishment, ~~marital~~ union a sin, private property a vulgar error, governments a ~~spillage~~ of God to be endured with resignation, social order and the national sentiment prejudices unworthy of recognition, humanity itself, as was indeed the most ardent

prayer of the first Christians, would have perished in ignorance, in an ecstatic indolence, in the anarchy of a communism at the mercy of some arbitrary despot or deified Anti-Christ, lastly, in celibacy, proclaimed as the pre-eminently pure condition.

Fortunately these dogmas and mysteries have become a dead letter—idle dreams subtilised by metaphysics. The early Christian predictions remained unfulfilled; the Sovereign Judge did not come in the clouds; bodies, like the souls themselves, failed to rise again, as the grave could witness. Good and evil have continued their rivalry on earth; slavery still flourishes; neighbours still hate or love each other according to their mutual dealings; peoples still follow their course according to the jealousies created by want, interest, climate, race, or language. And Christianity discovered at last that it has effected no change in nature, that the passions ruled the world, that man ate and worked to eat, loved and begot issue, accumulated wealth and knowledge for his personal aggrandisement, lived neither on ecstasy nor on martyrdom, but regulated his actions according to worldly considerations, heedless of the puffed-out emptiness of funereal hopes and fears; in a word, that man began at last to think and ceased to dream except in his moments of relaxation.

Then, being entrusted with the direction of society by the very ruin of civilisation—a ruin brought about by itself—Christianity found it necessary to reckon with the realities. Its anti-social principles it was fain to modify or disguise as political institutions, rules of practical, family, or national life. Hence its intolerant and fanatical interference, its inordinate ambitions, its monopoly of all power and wealth; hence also those perpetual contradictions between precept and practice—those hypocritical persecutions; that preying upon a humanity reduced to a state of childhood and all the iniquities of that “law of love;” hence, lastly, that long and grievous chaos from which we have still but half emerged.

But let us turn aside and leave to his propagandist devices, in which he is “past-master,” the semi-panteist, who exclaims: “In God we live, move, and have our being,” the semi-fatalist with

his invention of "grace," the fanatical Paul, apostle of the Gentiles, true founder of the Christian religion. Nor need we be detained by the Alexandrian mystic John with his "In the beginning was the word." It will be more profitable still to follow the course of independent thought even in its aberrations. In Alexandria, Athens, Rome, in the Jewish cabala, we shall meet it struggling with the dreams that haunted the Christian fancy. But at any rate it does not pretend to enslave humanity either to a man, a book, or a church. For if the Bible is ever present to the mind of the Jewish school, it is as a text which they freely interpret; and if the Alexandrians defend the gods of paganism, that complicate and easy-going pantheon, they first reduce them to a collection of harmless allegories.

The discredit into which polytheism had fallen is clearly shown by the *Dialogues* of Lucian (120-200), by his satires against the idols, the pilgrims, charlatans with their relics and wise serpents, and even against the gods themselves. The system still survived in the form of an official and convenient state religion, or as a local superstition; but the gods were defunct, leaving nothing behind them but their shadow—the great Pan—and even with him Lucian, like so many others, troubled himself very little. In a curious passage of the great sceptic we have still an echo of the public opinion of the second century regarding the Christians, those "worshippers of the sophist nailed to a cross, who through a blind faith in the teachings of their master hold their goods in common." In his eyes they have no more importance than the votaries of Apollonius of Tyana or the dupes of the divine Alexander. But too great intellectual superiority has its dangers. The enemy was already walking abroad, already lurking in the recesses of the family circle, and Lucian failed to see him. Like his own Menippus in the Olympus of Jupiter, he contemplated the earth from too lofty a point of view.

By dint of detecting the weakness and vices of the various systems, Lucian ended by adopting none of them. He might perhaps have associated himself, like Cicero, with the probabilists of the new Academy; and in this sense alone could he be connected

with Plato, as Hippolyte Rigault has endeavoured to do. But at bottom he belongs far more to the group of Abderite Sophists, to Protagoras, Diagoras—indirect precursors of Pyrrho.*

Contemporary of Lucian was the famous physician Galen, who was born at Pergamus, in 131, and lived to an advanced age. In philosophy he seems to have practiced that eclecticism which had seduced Cicero and Philo the Jew, and which was destined soon to degenerate into a mystic pantheism. Deist, and a believer in final causes with Plato and Aristotle, he accepted the Stoic system of ethics. Regarding the nature of the soul he affects to hold a neutral position between materialism and spiritualism. But while defending his Hippocratic, Pythagorean, and Platonic theory of the three souls of man, he decides against the immateriality and immortality of the soul itself.

In his utter mental confusion he is unable to guard against the mystic aberrations of the East, and pretends to apply to medicine the revelations of dreams. A great physician, he was but a sorry philosopher.

Far more precise and decided seems to have been the Epicurean Celsus, the famous opponent of Christianity, who flourished under Adrian and Marcus Aurelius, and whom Origen vainly attempted to refute. He wrote a work against magic.

Mention must also be made of the mixed doctrines of the celebrated mathematician Ptolemy, also contemporary of Adrian and Marcus Aurelius, who was at once materialist and idealist, who was fond of supporting himself by the authority of Aristotle, but whom astronomy failed to preserve from astrology. Those who take an interest in the idle attempts to harmonise false ideas with defective experience will find in M. Franck's dictionary an ample account of Ptolemy's philosophy.

Fully as credulous as Lucian was afterwards sceptical, and preceding him by about a century, Plutarch of Cheronæa, priest of Apollo (50-120), has a sort of family likeness to the French classic writers of the seventeenth century, men possessed of learning, eloquence, literary talent, but who in philosophy did not get beyond the moderate and respectable ideas compatible with the

truths of revealed religion. In the case of Plutarch, with this timid sentiment were combined a becoming patriotism and love of ancient Greece. Loyal to the gods, and even to the simplest superstitions of his country, he yielded passively to the religious instincts of the times, and believed in a Providence present everywhere, in the sacrifices, auguries, and divinations by dreams. In the Pythagorean numbers, no less than in the motionless mover of Aristotle, he recognises Plato's supreme Idea, the Logos, the Word, which the Christians were fortunate in identifying with their Messiah, and which, from a purely metaphysical conception, rose to the position of a divine person.

To the same Neo-Platonic, Neo-Pythagorean group, but with individual differences and a more or less decided mysticism, according to the predominance of Greek education or Oriental influences, belong also Numenius of Apamea, in Syria; Apuleius of Madaura, in Numidia (about 160), more noted for the seductive pictures of his *Metamorphoses* than for his theurgical views; Alcinoüs, author of an epitome of the Neo-Platonic philosophy; Maximus of Tyre (180), the pseudonymous compilers of the Hermetic books and most of the Christian Apologists, fathers, and heresiarchs during the second, third, and fourth centuries.

The Christians, despised by Tacitus, by the Antonines, as well as by Lucian, or else summarily condemned as public enemies—which they were in reality no less than in theory—had turned tolerance and martyrdom to equally good account. The Emperors, who in their anger against the Stoics were driven from time to time to proscribe the philosophers—the only real support of the Roman state and of civilisation—never understood the nature of the movement by which they were soon to be swept away. Ever since the second century they found themselves taken at a disadvantage by a power which had all the forces of the East at its back. Already formidable by their numbers, the Christians seized the weapons of their adversaries, pointing against Hellenic thought the very doctrines and arguments supplied to them by their education itself. It was in the name of Plato and Pythagoras that they assailed the degenerate successors of those chimerical freethinkers.

What was one to believe? How distinguish the independent from the Christianised Alexandrians? From all the pulpits, amidst all the sects, there were heard the same idle discussions on the Word, the triads, the demons. The Jewish Cabala and the Christian gnostics, both alike pantheistic, the hundred heresies of the Ebionites, Corinthians, Nicholaïtes, Nazarenes, &c., silenced the voice of the two Celsi speaking in the name of experience and reason. To all this add the strange or absurd theories of the brilliant sect known under the names of Alexandrian school or Athenian school, a sect as imbued with Christianity as was the latter with Platonism, and which added strength to the enemy while opposing him. The Old World had swept away its landmarks.

The origin of the Cabala is involved in obscurity. Strange mixture of mysticism and of scientific tendencies, it acquired no real importance till mediæval times, when it served as a haven for heretics and enlightened thinkers. But its two principal monuments, the *Book of the Creation*, and the *Zohar*, or *Book of Light*, are evidently inspired by Philo. The system set forth in them seems to date from the two rabbins Akiba and Simeon Ben Jochai, who lived at the beginning of the second century. The practice of astrology and the cabalistic signs, as well as physiognomy and alchemy, are closely bound up with these pantheistic doctrines, which proclaim that everything in the universe has one meaning and one action, that in fact all is in all, gold no less than life and destiny.

To the initiated the cabalists mysteriously communicated a cosmology, on the whole closely akin to the Alexandrian and Christian neo-Platonic doctrines, and this was done under cover of a version of Holy Writ ingeniously interpreted, for the letter killeth and the spirit quickeneth, as spoke Philo and Paul, or else under the authority of a Moses transformed to a Plato, a Pythagoras or Zoroaster. A God whose immensity fills all space; beings emanating from a residuum of God and tending ever to return to the source of their type and real form; two worlds, an intelligent and a material, one the luminous centre whence God radiates throughout creation, the other more and more darkened

and blighted according as it departs from the pure being, both peopled by hierarchies of good and evil angels transplanted from Persia; between these two worlds man, uniting in himself the two natures, the spiritual and material, with his prototype, *the heaven-born man*, mediator between the Creator and the creature; a twofold perpetual motion of emanation descending to the earth and reascending on the wings of love, faith, ecstasy—the end and goal of all science; the pre-existence and deathlessness of the soul, transmigrations and trials of an atoning nature, ultimate sanctification of beings re-absorbed in unity: such are the theories with the general drift of which we are all familiar, and with whose details we are little concerned. It is, as the reader sees, a quintessence of Parmenides, of Pythagoras, Empedocles, Anaxagoras, Plato, and of all the chimeras that have haunted the human intellect from the dawn of belief in the reality of phantoms and of intentions hidden in outward things, to the appearance of the metaphysical and rationalistic entities. *Bombynants in vacuo*, beating the air with empty subtleties, such have ever been the devices of all those dreamers, who contrive somehow to associate concrete life with their abstractions. For the cabalists, all morals, all virtue, are summed up in the aspiration to God, union in God. Science is a reminiscence of the divine truths; evil is the passing shadow intended to enhance the good which lies beyond the grave. Marriage, which the Cabala, as it happens, countenances and upholds, is holy, because the union of two souls typifies the ultimate union of beings with the source of all being. But what social system, what solid justice could be built up on such trivialities? To all this sham sublimity we should be indifferent enough had it not exercised, did it not still continue to exercise, such a seductive influence over women (half of the human race!), over the lovers of vagaries and over imbeciles in general.

The gnostics are merely Christian ecstasists. Talismans, ecstasies, empty erudition, appeals to Pythagoras, to Plato, Zoroaster, Buddha, Moses, all this they have in common with other contemporary dreamers. They claim to aspire to the *revelé*, that is to the supreme science, and reduce to naught that Chris-

tianity, whose *folly they were unable to stomach*. The expression is not ours, but Bossuet's. Of all the theories elaborated by the Gnostic sects it will be sufficient to summarise that of Basilides and Valentine :

The Great Being brooded from eternity in the *πληρώμα*, or boundless space. But here it is necessary to divide eternity into two parts, one, in which God—unknown father of the future creations—slept, like Aristotle's motionless mover; the other, in which God bestirs himself, and by his motion throws off a succession of emanations, of spiritual beings, the *eons*, begot in ever-descending series, *progeniem vitiosiore*, with ever-increasing loss of divine energy. The *demiourgos*, the artificer of the terraqueous world, is a maleficent or short-sighted eon, and him man has to thank for all his woes. But the lagging pity of the Great Being sends a Redeemer at last—a Christ—and man, the sport of the eons, recovers his pure and blissful state in the bosom of the *πληρώμα*.

The only merit possessed by these doctrines is that they afford fresh evidence, against the panegyrists of the Roman peace, of the disorder of the intellectual world, and of the throes of social life under the imperial rule. Their adherents had great difficulty in deriving from them anything but rules of conduct of a very contradictory character. Some with Carpocrates of Alexandria mortified the flesh while satisfying it. Recognising none but the natural laws, they preached the community of women and property, or else with their model, Cain, they praised the murder of Abel, and remitted all crimes. Others denounced the flesh, whether as an instrument of the passions or an article of diet. Rabid apostles of celibacy, they made short work of pleasure, that is, of sin, by castration—the radical remedy which had already seduced the priests of Cybele, which Origen tried upon himself, which the fifty thousand mutilated victims of Russian fanaticism practise at the present day on a vast scale. As if man without lapsing could either enter into or escape from the animal state ! This genetic phase, this hysteria of the intellect, is one of the signs by which troubled and unhealthy epochs betray themselves.

But whether spiritual or carnal, all the mystics, all the Gnostics alike, found in their doctrines equally valid justifications of their aberrations, of their anti-social or unnatural insanities.

It was in the midst of all these philosophico-religious sects that originated the Alexandrian school towards the end of the second century; a school which partook of all their errors, and in which Jules Simon, Vacherot, and other modern French eclectics and idealists have sought the origin of their systems. Yet this school challenges our respect because it assailed Christianity, because it endeavoured to uphold the rights of individual reason and independent thought against the tyranny of faith and the authority of fanaticism. It at least perceived that the thralldom of the conscience involved the ruin of civilisation. It fell in a just cause. But, on the other hand, it was the accomplice of its own overthrow. Of the old inheritance, which it meant to defend in its integrity, it really retained those points only that had been already occupied or destroyed by the enemy, the Christian or Christianised portions of Plato and Aristotle, and the fallen gods, in whom the Christians believed even more than did the Alexandrian school itself. For the latter reduced them to an allegorical existence, while the former converted them into real beings, powers of evil, demons. If the Greek wisdom had any hope of victory over Christian folly, it should have been sought in the method of Democritus and Epicurus, in the study of reality. But to the Christian metaphysics the Hellenic mind opposed^c conceptions the former had already borrowed from itself; to the Christian religion it opposed another the emptiness of which Greek philosophy had already made manifest. From the moment that it did not reject all metaphysics, dismissing the thousand gods of paganism together with the three gods of the new faith, its fate was sealed, for the very reason that its metaphysics were the more ingenious and its religion the more intelligent of the two. In a word, to the Christian disorganisation it opposed no principle of durable organisation and government. But the ignorant masses saw in Christianity nothing but the deadly foe of an intolerable social condition, and the hope of a deliverance continually delayed on earth but immediate and

certain in heaven. They little heeded the subtleties in which their own doctors, no less than the heterodox philosophers, became alike entangled. The most incoherent vagaries appeared all the more sublime, the coarsest legends seemed all the more beautiful, provided only that they conducted them by the hand to the threshold of "the Kingdom of God."

The Alexandrian theories required to be understood, the Christian dogmas needed only to be believed, and here, as ever, the law of the least effort was destined to prevail. Awakened and swept away by the very movement it hoped to resist, the philosophy of Plotinus, Iamblichus, Julian, Proclus, became merely one of the elements of the triumph of Christianity.

The Alexandrian starting-point is eclecticism, the reconciliation of Greek idealism and rationalism, but above all, the fusion of the Hellenic and Oriental mind, of philosophy with theosophy and theurgy. The result of the fusion was what might have been expected—a mystic pantheism.

God is the God of Plato, agent and organiser; the God of Aristotle, motionless, absorbed in self-contemplation; the God of Parmenides, the absolute unity from which Plato shrank.

The universe is an aggregate of phenomena, distinct from God because movable, but confused in him, because he is one; it is an emanation from God, but is not outside or beyond him. Individuals have a special essence, but which they desire to lose, and which they do lose by absorption in the universal essence. All existence is regulated by two laws—emanation and re-absorption. Everything descends from a source whither everything aspires to return. A current streams from the one to the many, from the perfect to the imperfect, leading the many to the one, the imperfect to the perfect, whither all returns; which is as much as to say that the real individual being is the imperfect, is evil, that the sovereign good is the absolute one, the non-existent, and that the non-existent is the fulness of the existent.

The Alexandrians themselves were struck, not by the nihilism in which their system ended, but by the contradictions it involved. How reconcile the perfect immobility of the motor with his action

on matter? The absolute unity, the identity of being and non-being, with the existence of the many? How, above all, derive the many from the one?

No doubt recourse might be had to Pythagoras and his arithmetical formulas; and there were also the theogonies of the East with the mysterious trinities. God becomes endowed with three states, substantial forms or hypostases: Unity or the Absolute, Intelligence or the self-subsistent Being, the Soul or mobile motor; in other words, Father, Word, and Holy Ghost. But the difficulty still remains. Unity does not involve intelligence, nor is motion implied in the self-subsistent Being. Nay, more, motion is nothing unless there is something to move, and the many still confront the one, both irreducible. Experimental reason upsets the hypostases, which metaphysical reason fails to reconcile. Hence, to cut the matter short, above reason the Alexandrians place a superior faculty, surpassing and contradicting it, a faculty already imagined under other names by Plato and Aristotle. This is the so-called ecstasy, the intuition of the absolute truth, a special condition of our intellectual and sensuous faculties, in which thought in a holy intoxication becomes identified with its object. But this ecstasy no more explains anything than do the hypostases; and the human mind, no further advanced than before, remains face to face with the reality, contending with problems which it has scarcely so much as touched.

Indefatigable commentators on Plato and Aristotle, erudite and polemical, the Alexandrians have a claim to the gratitude of the historians of philosophy and religion, but philosophy has otherwise no interest in the theories of a school which deliberately overlooked man and the universe.

The invention of eclecticism is usually ascribed to Potamon, after whom comes Ammonius Saccas, founder of the Alexandrian school (200 A.D.), of which Plotinus was the light and the glory. This famous mystic, author of the "Enneades," was born at Nicopolis in Egypt, about 205, and died in the last year of the reign of Claudius II.

He had travelled in Persia and India, and his work, edited by

Porphyrius, consisted of six *æneades* treatises, making fifty-four altogether. It is the great monument of this school, a monument in which science, very genuine and comprehensive for the times, ends in ecstasy; that is to say, in the negation of all science, in which the most subtle dialectics rise from contradiction to contradiction, to the pure and simple affirmation without proof, to the most explicit confession of impotence, to blind faith. The foundations of the chimerical structure had been laid in the void by Plato, and it was completed by Plotinus, with a boldness meriting both our admiration and our pity. But our object being to establish, after and with so many others, the true foundations of philosophy on observation and reality, we can devote little time to analysing either the vain dream of emanation, or even the more plausible though not the least vain portion of the "*Æneades*," the critique of Aristotle's "*Categories*," and the distinction between the intelligent and the sensuous, between the world of the Absolute and the world of the Relative.

With Plotinus must be grouped Origen (not the Christian writer of that name); Longinus, minister of Zenobia, and to whom has been wrongly ascribed the well-known treatise on "*The Sublime*;" Hereonius; Amelius; lastly Porphyrius the Illyrian, born 232 A.D., the most original, and perhaps the least mystical of the Alexandrians, who had been a Christian, and always retained a great veneration for Jesus. He rejected nothing but the absurdities of the mysteries and dogmas, which he regarded as a return to barbarism. To the triune god, and to the man-god, he opposed the supreme god, accessible to the sage without worship, without ceremonies or a mediator. But a disciple of Plotinus could scarcely remain a pure rationalist. Pushing Plato's theories to their last consequences, Porphyrius made all our conceptions depend on a parallel series of invisible beings, types or *ideas* alone endowed with real existence. He thus prepared the way for the *realism* of the schoolmen. Influenced by Pythagoras and the Indian doctrines, he taught the transmigration of souls, and condemned all animal food as cannibalism. Lastly, induced by his anti-Christian polemics to revive paganism, he represented the gods as heavenly spirits,

mediators to be propitiated by sacrifice and prayer. Following the example of the magi, he grouped these divine powers in endless hierarchies of beneficent or malignant genii.

Besides the publication of the "*Æneades*" of Plotinus, and several treatises, to Porphyrius we are indebted for an introduction to Aristotle's "*Organon*," the "*Isagogics*," which played such a prominent part in mediæval times.

Of the two principal disciples of Porphyrius, one, Theodorus, remained faithful to the master's critical spirit; the other, Iamblichus, became noted for his blind credulity and incantations. He was a native of Chalcis in Coelesyria, consequently a fellow-countryman of Heliogabalus, the high-priest of "the black stone," sister of the Caaba. His origin sufficiently explains his theurgic tendencies, and his partiality for the Egyptian mysteries. He wrought miracles which the pagans opposed to those of the Christians. It is superfluous to add that he proclaimed the impotence of reason.

The fragments known under the name of the "*Hermetic Books*," and ascribed to Hermes, that is, to Thoth, Egyptian god of eloquence, belong to the neo-Platonic period. They savour of Porphyrius and Iamblichus, of the Cabala and the Gnostics, while betraying the intention of associating with the wisdom of the ancients the pretended truths and reveries dear to Christianity.

Disciples of Iamblichus were Sopater, Edesius (with their wives, or daughters, Edesia and Sosipatra), and Maximus.

Julian the apostate, born at Constantinople A.D. 331, and disciple of Edesius, was the man of action of this school. On ascending the throne he shook off the yoke of Christianity that had been imposed upon him. He attempted to arrest the old civilisation in its headlong career, and to restore the edifice with the fragments of the universal ruin. This was his glory, and his premature death was a real calamity. His chimeras might not, indeed, have got the better of those of Christianity, but during the respite afforded by them, some half-rational heresy, whether of Arius, Pelagius, or Manes, might have succeeded in breaking catholic unity, and thus hastening the hour of a general return to common sense.

Towards the end of the fourth century the Alexandrian had taken the name of the Athenian school. And here passing mention may be made of a famous woman, Hypatia, pathetic victim of Christian fanaticism. Daughter of the Alexandrian mathematician Theon, pupil of Plutarch the Athenian, inspirer of the poet-bishop Synesius, Hypatia, beautiful, chaste, and eloquent, became the vindicator of the rights of free thought and science in the midst of the Jewish, Pagan, and Christian sects, whose sanguinary dissensions were desolating Alexandria. Everywhere, in those unhappy days at the opening of the fifth century, but nowhere more than in Alexandria, were the most senseless and wild doctrines adding the chaos of internecine strife to the confusion of the barbaric invasions. The old world was devouring its own vitals, and was falling a prey to its savage progeny. The jealousy of a bishop, Cyril of Alexandria, combining with the ferocity of frenzied monks, let loose the blind hatred of the populace against Hypatia. Dragged from her pulpit, stoned and torn to pieces, Hypatia, whose lessons had inspired the enthusiasm of the few surviving noble and enlightened minds, sealed with her blood the triumph of Christianity (413). The school that she had restored perished with her, and Hypatia was the last Alexandrian philosopher in Alexandria. Plutarch of Athens, Syrianus, Isidorus, and especially Proclus of Byzantium (born 412), shed a dazzling light on the moribund philosophy. For Proclus, love was the principle and the end of being, and in support of his thesis he appealed, each in their turn, to Homer, Hermes, Zoroaster, Orpheus and Pythagoras, Plato and Aristotle.

The schools of Athens were closed by a decree of Justinian in the year 519, and the pagan thinkers who still remain now take refuge in the court of the Persian Chosroes. Disheartened and again brought back to the imperial domain by Damascius in the sixth century, the school lingered on and at last died out in obscurity towards the middle of the tenth century.

The first apologists and Fathers of the Church, Justin (89-167), Tertullian (160-245), Athenagoras (second century), Arnobius, Lactantius (250-325 (?), converted about 300), had been Platonicians,

Eclectics, and Alexandrians, claiming as Christian whatever philosophic or religious theories it was possible to reconcile with the vague metaphysics of Paul and John. In other respects commonplace and limited intellects, they misunderstood the doctrines whence they drew the greater part of their arguments. Superficial polemicists, they found it easy to assail the gods while themselves wrangling over the colour and the form of the Deity. Incapable of conceiving the immaterial, they all the more readily believed in the resurrection of the body, in the heavenly Jerusalem, and in the perpetually deferred promises of Christianity, to which, wearied with waiting, they now granted a respite of a thousand years.

With the single exception of Lactantius, simple or childish minds, they were at first succeeded in the East by more subtle doctors, by Alexandrians of a high type, by Clement of Alexandria (150-220), and by Origen (185-255). Christianity was now gaining over the lettered classes.

These two contemporaries of Ammonius Saccas and of Plotinus differ little from them except by their conversion to Christianity, a circumstance which places them in a position of marked inferiority. They are, above all, subtle eclectics, and for them Christianity is nothing but the end and goal of all the philosophies. Clement, a great admirer of the Greek thought, seeks truth in the harmony of the various systems, and endeavours to combine the Christian dogmas with the metaphysics and ethics of Plato, Zeno, Aristotle, and even of Epicurus. The same attempt was made by Origen, who was endowed with a more vivid imagination. Both alike are essentially Gnostics.

Origen, not to be confounded with his namesake and pagan contemporary, was neither less ingenious, learned, nor mystical than Plotinus or Porphyrius. According to him, all beings, emanating equally from God, that is, from the purest ethereal substance, become heavy and material in proportion as they depart from their source. From it they depart through sin, fruit of free will; as they approach, grow light, become spiritualised by their own will, in proportion as the love of God is increased in them. The end, the

goal of all being, is a return to the supreme focus, absorption in the primary substance. The bad angels, Satan himself, who fell through their own fault and will, will recover their estate by repentance and by aspiring heavenwards. The views of Origen on the Trinity, the very unequal parts that he assigns to the Father (that is, the Unchangeable Unity of Parmenides and Plato), to the Son (the Active Logos of Aristotle), and to the very unnecessary Holy Ghost, have earned for him the honour of being regarded as the initiator of all the heresies. Although orthodoxy as now understood had not yet been formally determined in the third century, the glimmerings of reason by the genius of Origen here and there shed on the emptiness of the dogmas were sufficient to condemn the over-daring philosopher in the eyes of the intolerant believer. His vast biblical labours, his five-and-twenty years of public teaching, his travels in the service of the faith, his austerities carried to the length of self-mutilation, could not save him from the anathemas of Rome. Excommunicated, banished from Alexandria and from the West, he at least remained the apostle and the oracle of Palestine, Phœnicia, Cappadocia, Arabia, and Greece. He was without the pale of the Church, but not of Christianity, and victim of the Dacian persecution, he survived his cruel tortures one year, dying, bruised and maimed, at Tyre in his sixty-ninth year.

The fourth century was one of the most troubled, one of the most sanguinary and disastrous, epochs that mankind has outlived. But it is celebrated by the Church, because it ushers in the era of her political and social supremacy. Yet for all the ostentatious pride she may take in her great men, in Athanasius, Jerome, Hilary, Ambrose, Augustine, she cannot conceal from history ^{of} her dignitaries, the furies of the sects, the fooleries of monasticism, the ruin of the arts, the proscription of thought, the dismemberment of the Roman world, that crowning work of a religion in league with a truculent barbarism. From the standpoint with which we are concerned, what characterises the fourth century is the divorce of faith and reason, the substitution of theology for philosophy, and the consequent aberration of human

thought and social morals. The triumph of faith, of orthodoxy, is vividly illustrated in the labours of the Nicean and Constantinopolitan Councils, defining the nature and persons of the Trinity. The last word of wisdom may henceforth be said to be Tertullian's *credo quia absurdum*. It is at once interesting and melancholy to follow in the writings of Augustine the continual encroachments of theology on philosophy. The philosophic value of the Augustinian doctrines is well-nigh null, teaching us nothing new or useful on the universe or man. Yet such was the influence of the strange medley of Plato and Paul in mediæval times, in the sixteenth and seventeenth centuries; such is the favour it still enjoys with our modern eclectics, that, at the risk of repetition, we cannot avoid briefly summarising it. There can here be no question either of the chequered career or of the literary talent of a really superior intellect. We are concerned only with the remarkable transition from a vacillating philosophy in its decadence to a blind and absolute theology.

Previous to his final return (387) to Christianity and orthodoxy, for he had been born a Christian (354), the future Bishop of Hippo had passed through the stages of indifference and Manichæism. He had pleaded at Tagestum, taught rhetoric at Carthage, Rome, and Milan, and here was converted by Ambrose. Priest and coadjutor at Hippo, he began by applying to the service of religion the ideas he had acquired from the philosophy then in vogue, the Alexandrian neo-Platonism, and this he did by harmonising them as well as might be with dogmatic truth. Where faith was sufficient, he needlessly superadded reason. But he never went the length of appealing to science; not that he altogether despised it, but because he subordinated it to faith. To believe is with him the one and only means of knowledge; hence his method is confined within the limits of the narrowest subjectivity. For a moment the analysis of human knowledge and its origin brought him to the very threshold of philosophy. Though not its inventor, he brilliantly developed the theory of the representative ideas of the object, of the ideas preserved by the memory; but he stopped short at the entrance of the right road. Satisfied with having set

aside the initial doubt of the Academicians by the unanswerable formulas: "If I think, I exist; if I am deceived, I still exist," he persisted in seeking the elements of truth in conscience alone, and in what he called the universal reason, without asking himself under what conditions, in what medium, were produced this conscience and this reason. Hence it was that he never got beyond abstraction, failing, like Plato and Plotinus, to reach the realm of substance or concrete reality. He recognised nothing but the metaphysical essence and entity, to which he vainly gave the name of substance.

Thus thought and love, attributes and results of the living organism, become for him the constituent substance of man. Their object being perfection, whether moral or æsthetic, this perfection exists, and is called God. Here is the *Logos* of Plato again, not to say of Aristotle, identical with the Son and consubstantial Word. A simple relation, a residuum of comparisons, a *desideratum*, or, as Kant will say, an illegitimate "postulate" of the reason, becomes a living being, a person, in whom the attributes and faculties of man, goodness, knowledge, power, justice, assume a substantial value. This God, discovered "in the brightness of a certain incorporeal light," "by the concentration of thought on itself," is the supreme reality, "in which all is explained, and whence all is derived."

Nothing exists except through God, who is everywhere. If he is infinite, as he is, he must needs be everywhere, else he would be limited by what is not God. In what meshes Augustine gets entangled in his efforts to avoid the inevitable stumbling-blocks of pantheism! "God," he says (that quintessence of goodness, love, &c.), "is substantially diffused everywhere; in such a way, however, that he is not a quality in relation to the universe, of which he is rather the creative substance, ruling it without difficulty, containing it without effort, not as if diffused in the mass, but in himself, entirely everywhere!" And elsewhere: "Hence God is not everywhere, as if contained in space, for what is contained in space is corporeal. As to God, he is not in space; on the contrary, all things are in him, without, however, his being the place in

which they exist." Metaphysics alone may find a meaning in such logomachy.

Whence, therefore, come these things, this universe, these foreign substances which God contains, without being the place containing them? From God, not by emanation, which Christianity rejects, but by creation *ex nihilo*. From nothing, whether this nothing was in him or without him, God made something, matter, everything. But once created, this matter ceases to be nothing; hence there is something besides God, and God is no longer infinite, is no longer everywhere.

But the souls, created like matter by God (of nothing?) for Christianity forbids their being considered as eternal, these souls "diffused throughout the whole body," although the body is not the place containing them, partaking of the divine nature without being particles of God, consisting of thought and of love, they also limit God, although contained in him.

And how are they united with matter? They are either formed from the souls of the parents, leaving the origin of these still undetermined, or God creates one for each birth, or keeps them in reserve, sending them when needed, or else of their own accord they enter the new-born bodies. We know what ridicule Lucretius has heaped on such crude suggestions, which Augustine leaves undecided, and is so far entitled to our praise. The soul passes through seven stages, through seven degrees ascending to God. But whither, if God is everywhere? Is the soul immortal? Unquestionably, and Augustine supports this view with many arguments, one worse than the other. But there are times when he seems to regard immortality as conditional, as acquired only by those souls that have reached the higher stages.

What can be said of such a theodicy, of such a psychology? As idle as they are ridiculous, they fail to offer any standpoint for a moral system. For how can he derive evil from goodness, which is God, whence all things are derived? But metaphysicians alone can be perplexed at such a question, for good and evil are purely relative to the living and sentient organism; a truth which Augustine was on the point of discovering. He even asserts that

"evil exists only in the false relations established between beings, or which beings voluntarily establish between themselves." But how reconcile this definition with the dogma of original sin? The principle of evil is antecedent to all relations between beings. There are three possible alternatives: evil is either a punishment of anterior states of existence, or proceeds from an evil power, from a God antagonistic to the beneficent God, or else the one God is solely responsible for it. Augustine rejects the first two hypotheses, because he does not admit metempsychosis and has renounced Manichæism. There remains the third, which he also rejects as a philosopher, while adopting it as a Christian. For next to Paul is he not the great advocate of the hateful doctrine of grace?

Before committing himself fully to theology, Augustine had been one of the most determined partisans of human liberty, of absolute free-will. The three books composed by him on this subject (395) were intended to combat the Manichæan hypothesis of the good and evil principles. But these writings became very embarrassing when he embraced the theory of Divine grace, which suppresses free-will, merit, and demerit. But whatever be the value of his reasoning, which is neither better nor worse than that of metaphysicians past and present, it does not diminish the responsibility of the Creator, of the pre-eminently good, without whom nothing exists, and who has yet permitted evil. The objections of Sextus Empiricus and Epicurus are thus still unanswered.

It was the impotence of philosophy that decided Augustine in favour of faith, dogma, mystery. Since reason, that is, his reason, failed to explain any of the fanciful problems it proposed to itself, it had nothing to do except abandon itself submissively to the truths revealed by God himself, without arguing either about this God or about these pretended truths. There is no more abject humiliation than a belief in such eccentricities as a God conceived in the womb of a virgin, the death and resurrection of a God, such incoherent logomachies as the Trinity and consubstantiation. It must be admitted that Augustine could not decide in favour of a faith without a show of reasoning. Yet after compiling fifteen

books explanatory of the Trinity, he was fain to confess that he had spoken without saying anything, "for we must needs make belief to say something."

Theology triumphed; eclecticism was overthrown; he renounced the impossible reconciliation of faith and reason; he forgot Plato and the sages whom he had honoured, discarded free-will and human dignity. There remains one authority only—the Church; one discipline—orthodoxy. "Beyond the pale of the Church no salvation." We are already far from the *common right* claimed by the first apologists, Athenagoras, Tertullian, Lactantius. What is not Christian has no longer any rights, and in the most detestable doctrines there is no longer anything that may not be accepted and vaunted by one who has said: "I would not believe in the Gospel if the Catholic church did not oblige me." Now we have nothing but grace, the predestination of the elect, original sin—the pleasure of God and of the Church taking the place of virtue and of will; there is no longer anything that can be called conscience or justice. Authority and obedience become the formula of the world and of life, the dilemma of Christianity, resulting in a universal hierarchy of slaves. The whole system of authority is found in germ in the works of Augustine, and a few quotations,* without comment, will give some idea of the blessings for which humanity is indebted to this extravagant and headstrong polemist:

God has chosen us in Christ, before the creation of the world, and has predestined us to be his privileged children. In this he consulted only the pleasure of his own will, so that all the glory thereof might redound to himself.

All men have deserved damnation. If without any merit on their part some are spared, it is the pure effect of an entirely gratuitous act of mercy. As for the rest, they do but undergo a just punishment.

There is either no will at all, or else it must be declared free. Sin is voluntary, and yet it cannot be avoided. Man fell through his own will, although through the will of God he could not but fall.

Who therefore can complain of God if resolved to show at once his power and his resentment he, with extreme patience, suffers the vessels of wrath prepared for perdition in order to give full effect to all the splendour of the vessels of mercy which he has prepared for glory?

* Collected in the work of M. Joseph Fabre.

Salvation is to be found nowhere except in the Catholic Church. Let us suppose a man of excellent morals: they will profit him not at all if he has no faith. Take another whose morals are less perfect; if he has faith he may obtain the salvation unto which the first cannot attain.

In those who have refused instruction ignorance is a sin; in those who have been unable to receive it ignorance is the punishment of sin; hence neither have a legitimate excuse, but suffer a just damnation. Socrates, Marcus Aurelius, Scipio are all alike excluded from the everlasting kingdom. Having no faith in Jesus Christ the heathen cannot be saved. Were they to be saved, would not the divine Redeemer have died in vain?

All justice unmotivated by religion is no justice.

God has said: Thou shalt not kill; but if the prohibition be removed the crime ceases, and *should God, by a general or special decree, order us to kill, homicide would be a virtue.*

It is with a view to their good that heretics are compelled to change their belief. To act otherwise towards them would be to return evil for evil. Compare the deeds of the heretics with what they undergo. They kill souls, and they are stricken only in the flesh. Can those who inflict everlasting death complain of receiving temporal death?

The good and the wicked may perform the same act, but with different intentions. It is in the spirit of a just severity and *through love that the good persecute the wicked*; it is through injustice and oppression that the wicked persecute the good.

It is well to marry and become the mother of a family; but it is better not to marry at all. I know there are who murmur at this. What! they say, were all men to observe absolute continence, what would become of the human race? Would to God all were to consent thereto! we would all the sooner see the end of the world, and with the destruction of the earthly state we should behold the fulfilment of the heavenly kingdom!

The order of nature having been reversed by sin, the yoke of slavery has been justly imposed on the sinner. Slavery is a punishment; hence the Apostle advises slaves to be submissive to their masters and to serve them willingly, so that if they cannot be released from their thralldom, they may find liberty in it, by serving not through fear but through love, until all wickedness pass away and all human sway be destroyed on the day when God will be all in all.

All belongs lawfully to the faithful; unbelievers do not own an obolus of legitimate property. By what right do they hold what they possess? Is it not by human right? For, according to the divine right, God made rich and poor of the same clay, and the same earth bears them both. Hence it is by human right that one is able to say: *This house is mine, this slave is mine. But what is human right? Nothing but*

imperial right. Why? Because it is through the emperors and kings of the world that God dispenses human right to mankind. Take away the right of the Cæsars, and who will dare to say: This slave is mine, this house is mine? It is through the right of kings that we hold what we possess.

Such, amongst many others, are the senseless, immoral, anti-social maxims of the sect that preclaims itself the mainstay of freedom and justice, the bulwark of the family and of property. Such are the teachings that theology substitutes for the brilliant dreams of Plato, for the science of Democritus and Aristotle, for the serenity of Epicurus, the heroism of Zeno and Epictetus. It has laid violent hands on thought.

Reduced to bondage, philosophy must henceforth amuse itself by solving "Chinese puzzles" with the feeble instruments of logic. And when wearied with such monotonous trifling, it will venture occasionally beyond the bounds prescribed by orthodoxy, it will be brought back with blows and stripes, with anathemas and "the secular arm!" The Church took all that it wished to retain of the ancient folly and wisdom; the rest is condemned and suppressed, and all dangerous innovations will be stamped out with the fire, the sword, the torture-chamber, and the gibbet. After the seventh century we shall have Platonic, Pythagorean, Peripatetic philosophers to a certain extent; but all will be, first, and above all, Christian. Unbelievers, heretics, schismatics, may also be found, but at their own risk and peril. The Church has become universal, and how shall they escape from it?

Nevertheless, thought, being a permanent function of the brain, is a force which may be suppressed and perverted, but cannot be destroyed. By some unseen or unseen source it will ever filter through and return to power. We shall see that one of these openings, that had been stopped too late, was the question of the Universe, whence arose Nominalism and Realism, other names for experimental philosophy and metaphysics. But even at the very dawn of mediæval times, this outlet, through which the human intellect was destined almost inevitably to escape from the slavery of theology, was already revealed in a dim manner by

Boetius (470-526) on Porphyrius's Introduction to Aristotle's "Organon." It escaped the notice of the Church, just then too seriously occupied amidst the surrounding chaos of barbarism, in silently weaving the network with which it intended to ensnare the world.

Porphyrius had already asked "whether genera and species existed in themselves, or only in the intellect; and in the former supposition, whether they existed apart from the objects themselves, or in them, and forming a part of them?" By the terms *genera* and *species* are here to be understood not only the various classes of ~~repetable~~ or living individuals, but also, and above all, the general ideas formed by abstraction, which Plato pretended to regard as the pre-existent types of real beings, and which Aristotle placed at the head of his work on logic, under the equivocal title of Categories. Porphyrius formulated the problem without solving it. After remarking, sensibly enough, that general or universal ideas, summing up the characters common to a certain number of particular objects or beings, really exist in the objects, from which they are distinct, and separated only as abstract conceptions, he adds: "Plato fancied that the universals are not only conceived in the mind, but also really exist, that is, *independently of the objects*. Aristotle, on the contrary, regards the incorporeals and universals as conceived by the intellect, and as existing *in the objects themselves*."

The significance of the dilemma is not apparent at first sight; we might even say that it was never clearly appreciated by those who solved the question in one sense or the other. Yet it is of capital importance. If goodness, justice, perfection, &c., are but the summary of certain characters observed in certain groups and actions, metaphysics, which speculate on the universals, are no longer the science of first principles, and become merely an idle combination of empty formulas; for they take consequences for causes, the relative for the absolute.

§ 3.—*Philosophy of the Middle Ages—The Jews and the Arabs—
The Schoolmen.*

ARISTOTLE and Plato, more or less thoroughly known, more or less understood, associated in the West with Augustine, at Byzantium with the Greek Fathers and heresiarchs, in the East with the Bible and the Koran. Such is the whole substance of mediæval philosophy.

Doubtless this long period of eight centuries, from the seventh to the fifteenth, witnessed the rise of a great many learned, ingenious, and subtle minds, who discussed, from every point of view, the subjective data, whether mystic and metaphysical, or rationalistic, supplied by the prevailing doctrines and religions. But no new or useful ideas were originated on man and the universe; and so true is this, that the whole scholastic period might be omitted without our becoming conscious of a gap in the history of thought.

While in the West the contemporaries and successors of Boetius, Mamertius of Vienne in the Dauphiny, Martianus Capella (fifth century), Cassiodorus (sixth), Isidore of Seville, and the Venerable Bede of Jarrow (seventh and eighth), the Englishman Alcuin, director of Charlemagne's* palatine school, and founder of scholasticism, and his successor, the Irishman, John Scotus Erigena, at the court of Charles the Bald, are exercising themselves with Augustine, with commentaries on the "Phædo" and the "Timæus," with Porphyry's Introduction, and some fragments of the "Organon," in the Mussulman East the shock of Islam and a more comprehensive knowledge of Greek and Alexandrian philosophy produced amongst the Jews and Arabs more daring thinkers and a mental activity of a less servile character. It was from the East, from Syria and Moorish Spain, through translations of Hebrew and Arabic versions, that were restored to the West the masters of thought, and especially Aristotle, from whom proceeded the most brilliant epoch of

* Charlemagne is said to have received from Haroun-al-Raschid the present of a complete copy of the "Organon."

scholasticism ; as, again, in the fifteenth century, it was from Constantinople that were now transplanted to Italy the germs of the revived philosophy of the Renaissance.

Till the appearance of Mohammed in the seventh century the natives of Arabia, still indifferent to the speculations of philosophy, had remained faithful to their old astrological superstitions. Nevertheless, they had too many traditions in common with the Hebrews to prevent the Jewish religion from making numerous proselytes amongst them, and Judaism had prepared the way for Christianity.

Mohammed, unaffected by the Western influences which had distorted the Jewish monotheism, avoided the subtleties of the mysteries and the contradictions of the Trinity. Of the Persian, Gnostic, and Alexandrian ideas he accepted nothing but the belief in genii and angels, and in a very mitigated form the dualism of a good and evil principle. Fusing in one God, creator and absolute master of the universe, all the Molochs, Baals, and Adonais of the Semite tribes, he established Allah at the head of the heavenly hierarchies. Allah, revealed successively through Abraham, Moses, Jesus, Mohammed, and imposed by an armed propaganda on the whole earth, is the El, the Jehovah, stripped of his narrow national character, as well as of the neo-Platonic clouds, and the Christian ambiguities, and thus at last rendered worthy of the attribute of *Catholic*—universal. For the God of Islam has in his favour the immense advantage of being agreeable at once to the traditions of a race and to metaphysical reasoning. "Allah is God, and Mohammed is his prophet." This formula in its precision is worth all the Bibles and all the Gospels ; it disposes summarily of all doubts and discussions, while suppressing all spirit of inquiry and all science. True, it no more solves the enigma of the universe than do the Christian logomachies or the Alexandrian vagaries ; but it cuts it short. It proclaims a God—creator, prescient and absolute ; creatures subjected beforehand to his eternal pleasure ; though free to follow or break his law, punished and rewarded after death, according to their deserts, although their acts are predestined by God, and therefore inevitable. In fact, Christianity

has discovered nothing more or better than this, but it has less clearly and less boldly formulated these contradictory and senseless propositions. What right has the doctrine of efficacious or sufficient Grace to accuse Islam of fatalism? Fatalism is the basis of all religions that teach the omnipotence of a God-creator.

In fact, far more than neo-Platonised Christianity, Mohammedanism is the religion of simple minds, of "the poor in spirit," hence the progress it has made amongst the natives of Africa. It is a belief which is also less exposed than any other to the thousand shades of heresy. If sects and systems have arisen in Islam, no less than in Christianity, it was because, on the one hand, no check can entirely paralyse reflection and the workings of the human mind, and because, on the other, in its victorious march Mohammedanism met and clashed with older doctrines, tenacious opinions, a more refined culture. These it might, indeed, gloss over and partly assimilate, but could not eradicate; hence they have re-appeared, sprouting again like the undergrowth in ground partly cleared for cultivation.

Semitic genius has contributed but little to the many Eastern varieties of dualism and of pantheism that have flourished by the side and in the heart of Islam, amongst the Jews, or the Syrian, Babylonian, African, and Spanish converts. Jewish and Arab philosophy are essentially a combination of Hellenic thought with Persian and Indian reminiscences. Whence arose in the eighth and ninth centuries that grand and brilliant outburst of thought and of art, checked by the Tatar and Mongolian invasions, crushed less by the revival of fanaticism under the Almohades than by the resistance and triumph of Western Europe? It was inspired by ancient and by Byzantine Greece. The masters commented upon and translated in the schools founded at Bagdad, Cairo, Tunis, Cordova, Toledo, Granada, are Hippocrates, Plato, Aristotle, the Alexandrians.

Amongst the Jews, the Karaïtic sect (Anan-ben-David, &c.), who, like the old Sadducees, affected to keep to the text of the Bible freely interpreted, and the Rabbanites or partisans of the Talmud and of tradition (Saadia-ben-Joseph-el-Fayummi, &c.);

amongst the Arabs, the Motazales, Motekallemim, &c., were all more or less mystic rationalists, sceptics, or even atomists, applying Aristotle's dialectics to the Platonic and Alexandrian theories, combined either with the Bible or the Koran. For these schools Aristotle is the prince of philosophers, and this for two reasons: In the first place the last representatives of Athens—Themistius, Syrianus, Simplicius, &c.—had turned towards the peripatetic doctrines; most of Aristotle's works had been translated into Syriac, and were now done into Arabic; the encyclopædia of Aristotle, while easily dispensing with all past, present, and future metaphysics, contained, over and above all, the positive science of the ancients. In the second place Aristotle's dialectics, enabling us to argue syllogistically on all subjects whether serious or fantastic—for it teaches the art of drawing legitimate consequences from a once admitted principle, whether in itself true or false—were specially suited to the captious, cavilling, and formula-loving mind of the Easterns, so partial to stereotyped sentences and talismanic formulas. Such a system of dialectics had moreover the decided advantage of but half alarming the cloudy orthodoxies which were themselves willing enough to make use of it. Logic, as has been remarked, is a saddle that will fit any horse; it is taught and practised in the ecclesiastical seminaries, and excites no fears even in the most unstable dynasties; in the French schools and colleges the imperial government reduced philosophy to logic, herein merely imitating the Church. In the eleventh century, when the metaphysical works of Aristotle were transmitted to Europe in Jewish versions at third and fourth hand, the ecclesiastical authority hastened to condemn them, excepting only the "Organon," that is, logic. •

A detailed account of the doctrines inspired by Hellenic thought in the bosom of the Mussulman world would involve us in continual repetitions. Hence it will suffice to mention a few names, and sum up a few systems, the key to which has already been supplied by Gnosticism, the Cabala, and Alexandrian eclecticism. We may pass over in silence the translators who flourished in the eighth and ninth centuries, and the older sects under the

Alides and Ommiades, which, notwithstanding their affinities with the philosophic schools, affect above all a religious character, such, for instance, as those Ishmailians, whence sprang the Egyptian Fatimites, the Syrian Druses and Assassins, on whom M. Stanislas Guyard has published a curious monograph in the *Journal Asiatique* for April, May, and June, 1877.

Nor will the little we shall be able to say concerning them justify the reader in forming an opinion on such men as Al-Kendi, Al-Farabi, Ibn-Sina, Ibn-Gebirol, Ibn-Baja, Ibn-Tofaïl, Maimonides, Ibn-Roshd, Al-Gazali. These were illustrious writers, and great names for the extent of their acquirements, the versatility of their genius, the number of their works, their celebrity, and the influence exercised by them on their contemporaries and on posterity down to the time of Spinoza. But we are here mainly concerned with ideas in their relation to a real conception of man and the universe. From this standpoint we do not hesitate to say that their subtle and daring genius made complete shipwreck on the problem of the world, that their systems, to the last degree subjective and metaphysical, besides being borrowed and compiled from various sources, leave us as ignorant of the reality as did the dreams of Plotinus, Iamblicus, or Proclus.

Al-Kendi was an Arab, who flourished in the ninth century (800-861), at Balsora and Bagdad, under Haroun and Al-Mamûn and the great Abbassides. Physician, statesman, astronomer, astrologer, and commentator on Aristotle, he was a pure peripatetic, whose philosophic works have perished.

Al-Farabi, a Persian, or rather a native of the province of Mawaralnahar, beyond the Oxus, lived at Bagdad, Aleppo, and Damascus, and died in 950. He embraced the whole cycle of the sciences, and cultivated every branch of philosophy, of course including logic, besides ethics and metaphysics. Although occupied partly with Plato and Pythagoras, whose observations on the pretended music of the spheres he ridicules, he is a thorough Aristotelian. With his one being, his secondary causes or celestial spheres, his active intelligence and theories on the soul, form, and matter; he adopted also his scepticism on the immortality of the

individual soul, and other "old women's tales." The direct intuition of the active intelligence was for him the aim of human thought, as well as the highest stage which the mortal soul can reach. This he called the prophetic state, doubtless in order to keep up a show of orthodoxy.

Ibn-Sina, Avicenna (980-1037), was also from Transoxiana, and a fellow-countryman of Farabi. He was a great physician and a most prolific writer. As a philosopher, he started as a peripatetic, and ended in oriental pantheism. A methodic mind, he classified the sciences in three extremely arbitrary divisions: superior science, or first philosophy, metaphysics; inferior science, of matter and of nature; intermediate science, partaking of both, mathematics. From Aristotle obviously proceed his distinctions of the possible and the necessary; his theories of the first motor, and of the first sphere which communicates the motion; of the rational soul which by knowledge or direct intuition embraces the whole physical and metaphysical universe. Except a few ingenious subtleties, he can scarcely be said to have added anything to the system.

Oriental and peripatetic philosophy found a somewhat skilful opponent in Algazali, or Algazel (1038-1111). Born at Tûs in Khorasan, this theologian revived the ordinary objections both against the evidence of the senses and against the value attributed to logical demonstrations. He attacked the idea of causality, but his radical scepticism led him only to mysticism.

When we reach the eleventh century Spain becomes the home of oriental philosophy. The first name that occurs is the Malaga Jew, Ibn-Gebirol, the Avicbronus of the schoolmen, who flourished at Saragossa in 1045. If it be true that he never read either Plotinus or Proclus, he may pass for an original thinker. But his hierarchies of creatures, his matter continually condensing and growing heavier, from the imperceptible point to actual bodies, the extreme limit of existence, his circles surmounted by forms determining their *substratum*, his universal intelligence, that unity in which the divine will has fused matter and the absolute form, are nothing more than confused variations of the old Alexandrian theme. Ibn-Gebirol is essentially a *realist*, who regards our mental

abstractions as real beings, and the principles of things. All the doctrines that take the relative for the absolute, the effect for the cause, and which reverse the terms of the philosophic problem, may be sought for and recognised in the obscure reveries of Avicbronus.

Ibn-Baja, another Spaniard, but of Arab (?) descent, who was born at Saragossa towards the end of the eleventh century, and died at Fez in 1138, but who is better known by the name of *Avenpace*, also occupied himself, without deviating from Aristotle, with the active intelligence and spiritual forms, with the rational soul and the absorption in Unity. On the immortality of the individual soul he abstained, like Al-Farabi, from advancing a decided opinion.

His disciple, the Andalusian Arab Tofail, who died in Morocco 1185, while professing the peripatetic doctrine, devoted himself mainly to the reconciliation of Islam with reason. For him religion and philosophy are absolutely identical. The first has merely assumed forms more intelligible to the vulgar, taking account of social institutions in order to accommodate itself to the exigencies of our feeble human nature. The true goal of the philosopher is absorption in God by contemplation.

Maimonides, a Cordova Jew (1135-1204), astronomer, dealer in precious stones, Saladin's physician, theologian, expounder of Holy Writ and philosopher, was one of the most learned and enlightened intellects of the twelfth century. His checkered life and numerous writings are assuredly worthy of being studied. But his doctrines do not differ sufficiently from those just mentioned to call for a detailed exposition here. Their object is still the reconciliation of religion (Judaism) and philosophy, but with a decided tendency to subordinate faith to reason. He is essentially a rationalist, who is far from confusing science with intuition and ecstasy. He is no mystic, and his ethics, full of good sense, allow man to neglect none of his faculties, to suppress none of his passions, to release himself from none of the social relations and duties, expressly condemning celibacy and monasticism, and altogether marked by the wise and vigorous spirit of Aristotle. In his eyes all science is

good and necessary to lead to the supreme science, which is, of course, metaphysics and the knowledge of God. Considering his surroundings and the times, his thought is free and daring, and has need of all his spontaneous orthodoxy in order to escape from the contradictions involved in the attributes of God, and reconcile human liberty with providence or divine foreknowledge.

Ibn-Roshd, Averroes (ob. 1198, at an advanced age, in Morocco), successively *cadi* in Seville and his native town of Cordova, physician to the Sultan of Morocco, favoured and then persecuted by the ferocious fanatics of the Almohad dynasty, is the most illustrious of all the Arab commentators on Aristotle. Except the "History of Animals" and the "Politics," there is scarcely a treatise of the master that he did not comment once, twice, and even three times. Like most of his predecessors and contemporaries, he is mainly a *peripatetic*; like them also, adopting the neo-Platonic hypothesis of emanation, he endeavours to associate the famous motionless and sole motor with the manifold motion of beings, and this by means of the intelligence and life diffused and transmitted from sphere to sphere. Lastly, like them, he seeks to establish the fundamental identity of religion and philosophy. At the same time, his rationalism is quite as decided as that of Maimonides, though showing himself more indifferent to worldly matters and human actions. Without lowering science below ecstasy, he regards sensation as an obstacle to the direct intuition of truth.

These ideas, continually re-hashed from the time, not only of Aristotle, but even of Anaxagoras to our days, would not of themselves suffice to raise Averroes above the crowd of lesser lights, of *philosophi minores*. But by means of arguments such as they were, and always metaphysical and subjective, he arrived at some of the affirmative or negative theses of experimental philosophy. These opinions, which constitute the originality of his doctrine, and which stirred up all the orthodoxies against him, claim at least a passing notice.

While regarding the universe as a hierarchy of individualities, as a concatenation of spheres animated by a supreme principle, at once universal and all-enveloping, external and yet essentially

united with all contained within it ; that is to say, the sphere of pure intelligence, Averroes attributes to eternal matter an importance with which Aristotle himself refused to credit it.

Matter is not merely the potential, the faculty of assuming any reality through the form acquired from without. "For Averroes," says Munk, "the form itself is virtually contained in the matter ; for if it had been merely produced by the first cause, this would be a creation *ex nihilo*. Metaphysically speaking, the argument is not strong, because the first cause is all-sufficient. But practically, the world is here reduced to two real elements—matter and intelligence—substance on the one hand, on the other the anthropomorphic and rational conception. The problem is at least reduced to its simplest terms, and stripped of all its *logical* embellishments. Averroes never for a moment suspected the solution ; he failed even to perceive that intelligence was a special, a local, and contingent result of material combinations. But matter now ceases to be, not merely a creation, but even an emanation of the intelligence. It also is a something universal, a something eternal, which must henceforth be taken into consideration. *Averroes denies creation.*

The object of life is the identification of the passive, individual, material, and perishable intellect, the *tabula rasa* of the human soul, with the active, universal, immaterial, eternal intelligence. The impression left by the active intelligence on the passive intellect transforms the latter into an acquired intelligence more and more assimilated to the former. When the acquired intelligence has by science completely assimilated the universal intelligence, it partakes of the indefinite eternity of the spiritual principle. But the passive intellect dies with the body, with the individual ; it is a simple disposition of the organism. No doubt the soul is imperishable in that part of it identified during this life with the impersonal reason. But the rest, which is the person, returns to nothing, except what passes to our posterity. As to Plato's fables on the future state of the soul, they may serve to mystify the minds of children and the people, or, at most, to stimulate the selfishness of men to the practice of virtue. "I am acquainted," says Averroes, "with perfectly moral men who reject these dreams, and are yet fully

as virtuous as those who admit them." *Averroes denies the immortality of the soul.*

In his essays at reconciliation Averroes meets with the Mussulman (and Augustinian) dogma of predestination, and here is how he deals with it. Man cannot be the absolute master of his actions, for there would in that case be a creation independent of the first cause. On the other hand, if they proceed from an inevitable fatality against which man is powerless, of what avail is any work, effort, or knowledge of his? But our actions depend in reality partly on our will, partly on outward causes. Still this will is ever determined by the objects of our desire and by circumstances dependent on the immutable laws of nature. Only the concatenation of these constant relations is a mystery for man, but not for a divine foreknowledge. In a word, man and his actions are at once both shackled and free, within the circle of which the radius is the length of his chain. *Averroes denies* altogether both *absolute free-will* and predestination; that is to say, the *caprice of fatality*, of God, and of Providence.

Averroes does not go to the full length of his ideas; but for a thinker of the twelfth century it is no small matter to have enunciated them. They will henceforth follow their natural bent.

The West had not awaited the Arabic and Hebrew translations and commentaries on Aristotle to shake the frail edifice of theology. Not that the schoolmen attacked religion deliberately, for they were in fact still more Christian than the Persian and Spanish philosophers were Mussulmans or Jews. But there are sites so undermined, strongholds so dilapidated that a breath of air will cause the very courts and dungeons to totter behind their buttresses, though the ashes and bones of a hundred thousand victims be piled up at their base.

Mediæval philosophy is not a system, for it comprises all systems. It discusses all the questions that the human intellect can propose to itself; it has its eclectics, its pantheists, and its atheists. It may be defined as the summary and the succession of the doctrines taught in the public schools in connection with the sacred or profane texts interpreted by the professors. Hence it is

that it has received the name of "scholasticism." Founded by Alcuin and John Scotus Erigena in the schools attached to the courts of Charlemagne and Charles the Bald, it excited for seven centuries the enthusiasm of the young men that thronged the universities of France, England, Germany, and Italy. Hence it played a great part in the formation of the public sentiment during the Middle Ages, and it deserves some thanks for having upheld the rights of reason, and, to a certain extent, even of experience, side by side with or in opposition to the authority of faith.

It is not a little remarkable that its diffusion and influence were due to the Catholic *idea*. By substituting its universal for its Roman unity, the Church, so to say, compensated the feudal decentralisation so favourable to its ambition. On the West it imposed a general language, the Latin, and a country, Christianity, with its intellectual centre in Paris. An interested benefit, calling for no gratitude, as conferred with a view to universal dominion, but still a real benefit. Everything discussed in Latin by the scholastic professors of Oxford, Cologne, Padua, in the universities and monasteries of the whole world, was re-echoed in Paris, and thence diffused throughout the West. This double phenomenon, first Roman then Christian unity, on the one hand; on the other, the attractive and diffusive influence of Paris, is the essential fact underlying and determining the current of modern history. Hence the European equilibrium, and the possibility of a future United States of Europe. Hence the expansion of the French intellect, and hence also the universality of scholasticism.

Herein is apparent the common, though doubtless quite formal and external character, which gives unity to all the doctrines of mediæval Christianity. Scholasticism, with more or less caution and reserve, introduces the reasoning element into religion, and scarcely suspects that "the one will kill the other." The depth of the blow aimed by them at religion is little suspected by the inventors of such captious questions, so dear to the graduates of the times, as: "Why was Eve taken from a rib rather than from any other part of Adam's body? If a mouse should eat the consecrated host, would it consume the body of the divinity?" The doctors are,

above all, animated by the desire to conciliate, to identify religion and philosophy. Both suffer from the attempt, which must prove fatal to one of them, while the other, maimed and distorted, will in the long run recover itself. The free spirit of inquiry will one day inevitably release itself from the violent and temporary solutions imposed on it by dogma and the secular arm.

To the unity of purpose may be added the unity of method. Apart from some fruit-bearing deviations, some daring appeals to observation and science, some symptoms of a Christian mysticism, scholasticism, which is above all subjective and rationalistic, may be defined as the application of the logical categories and dialectics of a sham Aristotle to the theodicy of an incomplete Plato (the Plato of the "Timæus"), or else modified either by the Christian neo-Platonism of Origen, or by the neo-Platonic Paulinism of Augustine.

Scholasticism was confined within this narrow circle, on all sides limited by Christian orthodoxy. *Ancilla theologicæ*, the handmaid, though often rebellious, of theology, directed, superintended, chastised by the Church, encumbered with dogmas and mysteries that it attempted to explain while accepting them, it vegetated in a social and moral atmosphere essentially artificial, and opposed to human nature. Nay, more, by a fatality, on which has been based a fresh title of glory for the Church, all the doctors were ecclesiastics, priests, or monks. Under the wretched régime, of which the Church had made itself the accomplice in order to become its master, all those who wished to escape from serfdom or from the sanguinary troubles of feudal life, were fain to don the cowl or the cassock. Not that the Church favoured freedom or science, of which it has ever been the direct enemy, but because, aiming at universal dominion, jealous educator of souls, it at least ensured to its members a part of its own authority and a relative impunity; but not an impunity from its own jurisdiction, as so many learned to their cost. On the minds that it had distorted from infancy, it imposed its heavy yoke of oppressive uniformity, and woe to whoever attempted to raise his head above the ordinary level.

Hence that love of dialectic subtleties, those hair-splitting

exercise, and verbal quibblings, those variations exercised on "the Chinese puzzle," those inventors of games of patience, the art of which consisted in displacing and replacing the form, the matter, the individual, the idea, the divine attributes, purposeless mental activity, barren exercise of the intellectual powers.

The history of Scholasticism is divided into three periods :

The first—ruled by Plato and Augustine, closes with the revolt of the Nominalists, who fancy they incline towards Aristotle—begins with John Scotus Erigena, and ends with Abelard—ix.—xi. centuries.

The second, determined by the Latin versions of the Hebrew and Arabic translations of Aristotle, becomes more exclusively peripatetic, and under two forms, the Dominican and Franciscan, witnesses the triumph of metaphysical theology. This is the age of the Thomists and Scotists—xiii. century. *

The third, under the name of the Controversy about the Universals, develops the antagonism between Realism and Nominalism, ending in Mysticism—xiv. and xv. centuries.

FIRST PERIOD.—*Neo-Platonic Heterodoxy* : John Scotus Erigena.

Orthodoxy : Anselm of Canterbury. *Nominalism* (Peripatetic Heterodoxy) : Roscelin. *Realism* (Platonic Orthodoxy) : William of Champeaux. *Conceptualism* (Heterodox Eclecticism) : Abelard. *Christian Mysticism* : St. Bernard, Hugo of St. Victor.

John Scotus Erigena,* a native of Ireland, and successor to the Englishman Alcuin, as director of the palatine school (under Charles the Bald), flourished in the ninth century. Well versed in the Greek Fathers, and translator of the pseudo-Dionysius Areopagita

* Called an Englishman in the original, and generally spoken of by English writers as a Scotchman, but really a native of Ireland, as shown even by his name of *Erigena* (Erin-born). From the 5th to the 10th century Ireland was almost exclusively called Scotland, and the Scots are first heard of as inhabiting the sister island. Alfred writes ("Orosius," l. i. § 28) : "Ighernia, hoc est Scotia hactenus"—Hibernia, which we call Scotland. When this name began to be applied to North Britain, Erigena was added to the name of John Scotus, to show that he was a *Hibernian*, and not a *Caledonian Scot*.

(really Alexandrian of the fourth century), he taught a mystic pantheism, sufficiently explicit to draw down the thunders of the Church on himself, and especially on his disciples Berengar (1059), Amaury of Chartres, and David of Dinan (xii. and xiii. centuries). Like all the philosophic theologians of the Middle Ages, he proclaimed the identity of philosophy and religion, a point that need not be again referred to. The one, he said, explains what the other worships. But he himself undertook to falsify this commonplace. His opinions on the Eucharist, that he regards as a simple commemoration, and on the eternity of future punishment, a doctrine which he attributes to the Manichæans, are no less heretical than his definition of God, and his theory of the relations between God and the universe. For him God is something above human conception, the "supra-ineffable," the "supra-unintelligible." In him the absence of substance is the infinite substance, the absence of life the infinite life, the absence of thought the infinite thought—in all which we have Hartmann's *Inconscient*, or something very like it. The universe, co-eternal with God, determines him while destroying his nature; God envelopes and interpenetrates the universe; by the act of creation he creates himself. All springs from and returns to the eternal. The first causes, ideas, types, forms, in which are deposited the immutable principles of things, are identical with the Word, and co-eternal with God, who has, nevertheless, created them. Man, an epitome of the created world, comprises within him all creatures, is their redeemer and mediator, and by the incarnation of the Word becomes co-eternal with the Father. Erigena vainly strives to distinguish the real from the intelligible, creatures from the creator; he struggles, and is drowned in the full depth of Alexandrian chaos.

Anselm, a native of Aosta in Piedmont, and who died Archbishop of Canterbury, was a disciple of Lanfranc. But though taking an active part in all the theological wranglings of the times, he interests us here only as one of the advocates of metaphysical reason, and as the inventor of a famous argument for the existence of God, an argument that satisfied generations of philosophers, that Descartes adopted, and Hegel condescended to admire.

All things considered, Anselm may be regarded, if not in practice, at least in theory, as one of those moderate intellects who, while basing philosophy on faith, are fond of seeking reasons for their belief. But they do not go very far, and rest satisfied with logic. Besides, the dogma *à priori* renders demonstration an easy matter.

* Anselm accordingly starts by believing everything taught by the Church and by orthodox philosophy. He believes in an infinite goodness, whence flows all that is good, an infinite justice, and infinite greatness, whence derives, &c. &c. And the union of all the infinities in one supreme personality, which he endows with life, reason, wisdom, truth, beauty, immortality, incorruptibility, immutability, beatitude, eternity, power, unity, and what not, constitutes God, that is, if he exists.

But how, it may be asked, can a believer discuss such questions at all? While endeavouring to explain faith by reason, Anselm merely shows that he believes according to the faith, but doubts according to reason.

The case is really serious, for existence is the *sine quâ non* of all qualities. Roland's mare has many merits, but unfortunately she is dead; still she at least has existed, whereas if God lacks existence, he lacks everything, and has always lacked it; and the discordant attributes, for which he was to serve as a centre and receptacle, are scattered to the four corners of the metaphysical heavens. This it was that troubled Anselm, and deprived him of rest and appetite; neither *à posteriori* could the soothing virtue of the *final causes* bring relief to his anguish, nor *à priori* could the ethereal aroma of the *necessary ideas* give peace to his wearied brain. One day, at last, after long meditations, he had the good luck to hit upon and throw into syllogistic form a simple and unanswerable argument, the grand *ontological* proof: "God exists, for the very reason that man conceives him." Such is really the sum and substance of an argument that has become so famous. Leibnitz thought to strengthen by completing it thus: "God exists because he is possible, and because nothing contradicts his possibility." But he thereby merely betrayed its amazing emptiness. In truth, the question remains where it was; for it would be neces-

sary, first of all, to prove that man really conceives the idea of God, and then that whatever man conceives, or whatever is possible, involving no contradiction in terms, necessarily exists.

In the confused and unintelligible form given to it by Anselm, in his *Proslogium*, the ontological proof could find no place here. But we may seek for a summary interpretation of it from those who have a taste for such verbal contentions, from M. Bouchitté, translator of Anselm, from MM. Jacques, Simon or Joseph Fabre.

Proslogium, Chaps. II. and III.—“The insane mind that rejects the belief in God nevertheless conceives a being raised above all those that exist, or rather such a being, than whom it is impossible to conceive a greater. Only he asserts that this being does not exist. But by this assertion he contradicts himself, since this being to whom he awards all perfections, but to whom he at the same time denies existence, would *ipso facto* be inferior to another, who, besides all these perfections, possessed existence over and above; hence, in virtue of its very conception, he is compelled to admit that this being exists, since existence forms a necessary part of the perfection that he conceives.” (“Dictionnaire des Sciences Phil.,” p. 72.)

“It is impossible for God not to exist, for by his very definition God is a being than whom it is impossible to conceive a greater. But I can conceive a being of such a nature that it is impossible to think of him as non-existent, and such a being is obviously superior to one whose non-existence I can conceive as possible; therefore, if we admit that it is possible to think of God as non-existent, there would be a being greater than God; that is to say, one greater than the being than whom we can conceive no greater, which is absurd.” (“Manual,” p. 431.)

Descartes' syllogism: “To say that a given attribute is contained in the nature or concept of a thing is equivalent to saying that this attribute is true of this thing, and that it is really contained in it; but it is true that necessary existence is contained in the nature and concept of God; therefore it is true to say that necessary existence is contained in God, or that God exists.”

From the objective or experimental point of view, which is

our standpoint, the ontological proof is null and void. But it does not even escape the test of sound logic. By building a hypothesis on another contained in the first, it begs the question. Thomas Aquinas shrewdly enough detected the *paralogism*, vicious circle, or *petitio principii*, involved in it. All the terms of the argument were one by one refuted by Anselm's contemporary, Gaunilon, who, in the first place, denied that the conception of God was itself sufficiently clear, then that the conception of general and abstract ideas at all involved the existence of an individual and real being. Kant, amongst moderns, has once for all set aside the ontological proof. To avoid needless repetition, we will quote his conclusion only: "A man would no more increase his stock of knowledge by mere ideas than would a merchant his stock-in-trade by adding a few zeros to the amount of his funds."

The question of the existence of God is closely connected with Plato's theory of Ideas and Aristotle's theory of the Universals. The controversy between Gaunilon and Anselm is preliminary to the greater controversy between *Nominalism* and *Realism*.

Are general ideas endowed with reality? Are they the absolute reality itself? Yes, answer Plato, Erigena, Lanfranc, Anselm, and the *Realists*. Are they not mere words, names, "abstract points of view of individual things?" Such is the opinion that may be attributed to Aristotle, that is maintained by Rabanus Maurus, Berengarius, and after them by the *Nominalists*.

The alternative is fundamental, and it is hopeless to attempt to avoid it either by inventing, with Claude Bernard, certain "organic ideas" presiding over natural phenomena, or by awarding, with Abelard, a reality in the individual to the general, to the type, to the species. The first qualification falls back on the Platonic theory, the second is practically mere *Nominalism*. Under the new titles created by the schoolmen must not be disguised the two great and antagonistic doctrines of *Absolute Idealism* and *Materialism*. Here we are dealing with something very different from dialectic quibblings.

The full significance of the controversy does not seem to have been suspected either by Roscellinus, who taught at Paris in 1080,

and who was the champion of Nominalism, or by the Church, which, after condemning this doctrine, appeared to have adopted it in the fifteenth century. Nevertheless, at the very outset, when Roscelinus applied Nominalism to the fundamental dogma, reducing the Trinity to a word, to a sound, a *flatus vocis*, he was compelled formally to retract by the Council of Soissons. It was moreover with the sanction of the Church that William of Champeaux, the champion of Realism and founder of the mystic and neo-Platonic school of Saint Victor, rendered famous in the twelfth century by the monks Hugo and Richard, maintained against Roscelinus that "general terms are not a collective name given to a class of individuals or of phenomena, but the proper name of a certain self-subsistent nature, distinct from the mind conceiving it and from the individuals conforming to it," antecedent and superior to these individuals. At bottom Realism is no more orthodox than is Nominalism. It is far above and far beyond religions; but it at least leaves the door open to fictitious and personified entities.

Peter Abelard, the greatest philosopher of the twelfth century (1079-1142), was a pupil of Champeaux. But he broke with Realism and fancied he avoided Nominalism by teaching that general or universal ideas are neither self-existing things nor yet mere words. They exist in the individuals as conceptions of the mind. But Roscelinus said precisely the same thing. "Brought face to face with objects the understanding detects certain analogies in them; it considers these analogies apart from the differences, groups them into more or less comprehensive classes; these classes are the genera and species. Species is not a single essence subsisting simultaneously in several individuals; it is a collection of resemblances. This collection, says Abelard, although essentially manifold, is by the authorities called a universal, a nature, just as a people, although composed of many individuals, is called one." It would be difficult more emphatically to deny the reality of the universals. Nevertheless, however illusory this pretended middle term, which has received the name of *Conceptualism*, Abelard belongs unquestionably to the mixed school represented by Aristotle, by Voltaire, and by Kant, who accepts both experience

and metaphysics. He is pre-eminently a rationalist, a logician, a dialectician. And as rationalism is sufficient, and more than sufficient, of itself alone to shake all religion, more especially such an irrational religion as Christianity, Abelard was never able to touch on theology without falling into heresy. He spoke "of the Trinity as did Arius, of grace like Pelagius, of Christ like Nestorius." Faith he defined "the free acceptance of things invisible," and declared that, "in all matters within the province of reason, we are not bound to have recourse to authority," that a truth should be believed, "not because such is the word of God, but because we are convinced it is so." He raised his voice against those "rashly credulous" minds, which accept a doctrine without inquiry.

From the little he knew of antiquity, Abelard did not hesitate to prefer Greek thought and virtue to the intolerant reveries of Christianity; he enrolled Pythagoras and Socrates amongst the saints, and placed Plato above Moses. For him the formula, "outside the Church no salvation," has no meaning. All this stamps him as a man of large and liberal views. His claim to glory does not consist in having spoken of *concepts* before Kant, or in having professed *optimism* before Leibnitz, but in having loved reason and liberty, in having restored to the degraded intelligence of man the consciousness of its strength. The enthusiasm of his audience hailed in him the dawning spirit of a new age rather than his cloquence and ingenious subtleties, and the Church was well aware of this. Condemned by two councils, dogged, proscribed, banished, broken in the struggle, he died prematurely in his sixty-first year.

Bernard, Abbot of Cîteaux and Clairvaux, the mystic Realist and fiery monk (1091-1153), persecuted Abelard with a rabid hatred. "Which is more intolerable in this theologian, his blasphemy or arrogance, his rashness or impiety? All, he tells us, think thus; *well, I think differently!*" Hence Abelard's crime! "He presumes to apply his daring investigations to all subjects, and, in his pride, oversteps the limits laid down for us by our fathers. Down with this man, who hands over to the fluctuations of human reason the faith bequeathed to us by the past, and fixed on unassailable

foundations? He deserves not answers, but blows." Ever the eternal cant about tradition and authority!

Amongst Abelard's numerous disciples are mentioned two bishops, Gilbert de la Porée, accused of atheism, and John of Salisbury, in whose eyes Cato, scorning to consult Jupiter Ammon, and listening to his reason and conscience alone, was the type of moral virtue. But of all his followers, the most famous was Arnolfo da Brescia, the religious and political reformer, who died on the scaffold. From the thirteenth century, the gibbet of the Inquisition becomes the convenient and peremptory reply of the Church to all indiscreet inquiry, to all revolts of science and reason. "The executioner," eloquently remarks M. J. Fabre, "is the great physician of the Middle Ages;" but he is a mere bungler, and will fail to arrest the progress of thought.

And now come the Jewish and Arab commentators and philosophers, introducing fresh texts and new systems to the Christian West.

SECOND PERIOD.—Reign of Aristotle, commentated by the Easterns. *Orthodox and Heterodox Peripatetics*: Thomas Aquinas; Roger Bacon; Duns Scotus.

The thirteenth century may be defined: an intellectual movement, either regulated or repressed by the Church; a social movement turned to account, or else crushed by crowned heads.

The nations, long paralysed by the dread of the year 1000, which was supposed to introduce the millennium or the end of the world, had at last recovered, and had begun again to devote themselves to the pursuits of life, of trade and the arts. Feudalism, decimated by the crusades, exhausted by the communes, broken by the ambition of its more powerful members and the usurpations of dynasties sprung from its bosom, was gradually changing the reality of power for the illusions of chivalry. Chivalry, a gay fashion, glittering with tinsel and empty show, accepted, submitted to through interested motives by all pretending to noble birth, with all its deeds

of prowess, its refinements, its parade of courtesy and fine sentiments, was, after all, nothing but a passing whim of privileged dilettanteism, reduced to practise its arts for the benefit of skilful designers. Above these two worlds—one dawning, the other dying out; one sombre, the other frivolous—were the kings, watching the mutual rivalries, favouring each in its turn, holding one in check by means of the other; lastly, by the aid of their jurisconsults, firmly cementing their political position. Here they found themselves face-to-face with the Church, most frequently her allies, at times her enemies, still steadily driving her from the field inch by inch, now by stratagem, now by open violence, and again by sharing profits. Neither their education nor their interests allowed of a decided rupture; for how could they decline the assistance of an institution which converts obedience to a dogma—for others? Pious sons of Holy Mother Church, to her they yielded the jurisdiction over souls, their own to begin with, on the sole condition of her consenting to sanction, to sanctify their power, to share with them the divine right of sovereignty. And when their accomplice so far forgot herself as to hurl her thunders against them, they cried out: *Fair play!* And when an anointed of the Lord retorted on a vicar of God with a blow, the matter went no farther. The courts, the unscrupulous measures, the armies of the prince, did not cease for such a trifle to be at the service of councils and inquisitions. And the Church had herself great need of such lay assistance. Her authority, ever encroaching more and more on the temporal domain, was absolute over the spiritual, though even here still threatened.

The fish grew restless in the net, and occasionally burst through a mesh, hence the necessity of frying a few now and then to bring the others to reason. But the operation was not always very easy, as witness those Albigenses who presumed to be Gnostics and Manichæans, and those Waldenses, communistic socialists. The heretic is worse than the infidel, the rebel more dangerous than the enemy. Thanks to the mutual hatred of North and South, and to kingly ambitions, the Church triumphed. The crusade that made shipwreck against the rock of Islam succeeded against bad Chris-

tians. Frightful massacres, nameless horrors, worthy of Genghis Khan or of Attila, mowed down the budding flowers of civilisation. The Inquisition, drunk with blood, left to its "merciful God" nothing but the care of "recognising his own."

But revolt was everywhere in the air, muffled, distracted, undecided. Everywhere in the vast prison was felt the vague love for freedom, a yearning for air and light. To relieve the strain, it was found expedient to allow art to pierce the heavy Roman walls, to raise the vaults, to shed a flood of light on the very citadel of mysteries, now deeply coloured with vast expanses of gorgeous stained-glass windows; to sketch, in extravagant arabesques, mystic epopees full of equivocal episodes. The Church was fain to tolerate the profanities of Gaulish wit, the irreligious triflings and indecencies of the fabliaux and the romances.

Thought had also begun to chafe in its leading-strings, which it was found necessary to lengthen (always a delicate and perilous operation), sharply curbing the restive, restraining the less refractory with more gentle handling.

An Alain de l'Isle, an Amaury, a David, now began to teach that "all is one, all is God, God is all;" that "God is the primary matter;" that there is "identity between creator and creature;" that all men are "members of Christ;" and occasionally that God is neither more nor less in the consecrated host than in ordinary bread." They announced the end of the reign of the Son, and the advent of the Holy Ghost; of Abelard's Paraclete. But a Council held at Paris, in 1200, summarily disposed of these dangerous anticipations of Spinoza's pantheism. David was compelled to retract, and Amaury, having died four years previously, was disinterred to teach him how to reason.

In the form of translations and commentaries Aristotle's "Natural History" and "Metaphysics" had been introduced into the universities. On three successive occasions (1209, 1215, 1230) attempts had been made to proscribe these writings and novelties. But all failed in the face of inveterate peripatetic grooves of thought. Then the Church discovered that she had little to fear from the motionless motor, from the spheres superimposed one above another.

And in truth, in the hands of those who know how to use it, Aristotle's "Organon" is far more opposed to orthodoxy than are his metaphysics, his ethics, or his politics. Still more dangerous were the unbridled idealism of Avicbronus, and the pantheistic audacities of Averroes. We shall see that a laborious eclectic undertook the task of reducing to the compass of the theological standard everything reconcilable with faith in the orientalised Aristotle.

Lastly, with Greek rationalism and Arab pantheism, not merely erudition but a genuine instinct and love of science were introduced into the schools. Immense compendiums (Albertus Magnus, twenty-one folio vols. ; Vincent of Beauvais, "Speculum Mundi," ten folio vols., &c.) brought together all the knowledge of the times. Mathematics and astronomy, still necessarily entangled with astrology, were developed, while alchemy kindled its furnaces and sought in observation the confirmation of its dreams. Pantheism said : "All is in all," hence all matter included all forms. The only question was how to extract them, how to get gold from other metals, how to precipitate in the alembic the quintessence of wealth and life, the philosopher's stone, the elixir of perpetual youth, the *homunculus*, man produced ready made, by an art wiser than nature. Yet these tentative efforts, inspired by vain dreams, were the beginning of the great work which was to end in the creation of the positive sciences, a thousand times superior to the ravings of the alchemists. An ever-memorable, irrepressible enthusiasm now pervaded all the enlightened classes, including the whole clerical hierarchy. The rigorous measures enforced against the common herd of "sorcerers," and even against some of the most learned men of the age, succeeded with great difficulty in keeping science within the limits of orthodoxy.

How shall we record all the shades assumed, all the compromises attempted, by conceptualism, nominalism, realism, mystic pantheism, now veiled under a common Aristotelic phraseology, now moving undisguised in the midst of an inextricable confusion? How follow the incidents of those subtle and violent struggles, those clashing of words whose sense is lost, and which have no interest beyond

the sphere in which they were produced, and all further complicated by the mutual hatred of two rival monkish orders? Dominicans and Franciscans contend in the universities of Paris, Oxford, Padua, for the monopoly of philosophic teaching, each claiming to interpret in their own way, and to appropriate to themselves the "sentences" collected by Peter the Lombard, the treatises of Aristotle, the Arab commentaries, Avicbronus, Maimonides, Avicenna, Averroes, the fathers and philosophers, the sciences and thedries, and all the systems!

We may begin with the Dominican school, which presents more unity and indulges in less extremes. Inventors of the Inquisition, and of the "Cases of Conscience," guardians of sound doctrine, advocates of authority and dogma, the Dominicans do not readily deviate from orthodoxy. It was their most famous doctor, Thomas Aquinas, who constituted and compiled the manual of the theological peripatetic system. He still reigns supreme over the ecclesiastical seminaries.

Albertus Magnus, master of Thomas, was born at Lavingen in Suabia, in the year 1193, and died in a Cologne convent, in 1280. A pupil of the school of Padua, professor at Hildesheim, Friburg, Ratisbon, Strasburg, Cologne, and Paris; provincial of the Dominicans; bishop of Ratisbon, Albert was the most voluminous savant and compiler of mediæval times. He wrote on theology, philosophy, natural history, physics, astronomy, alchemy—the mere list of his treatises filling twelve folio pages. Pantheistic and *realistic* metaphysician, but above all, a subtle dialectician, alchemist, and "magician," he betrayed a certain taste for the study of nature, but independently of all direct observation. But what he most lacked was method and critical discernment. Nevertheless, his influence was great, and no one contributed more than he did to impose Aristotle and his Arab commentators on the schools, and even on the Church itself.

Thomas of Aquin was born in the neighbourhood of Naples about the year 1227. After studying at Monte Cassino, he took the Dominican habit, came to Paris, attended the lectures of Albert at Cologne, accompanied his master to Paris in 1246, was there

received as doctor in 1257, after many intricate events which cannot here be specified, taught in Italy, and died in 1274. His early career was far from brilliant, and his fellow-pupils were wont to call him "the great Dumb Ox of Sicily." They should rather have said *cherub*, for his wings expanded until the ox became "the Angel of the Schools," the *Doctor Angelicus*.

He has left us continuous glosses on most of Aristotle's works, besides numerous treatises on questions of every sort. But his real doctrines must be sought in his "Book of Sentences," in his "Summa against the Gentiles," and in his famous "Summa Theologia." His views, however, are not easily determined under the intricate machinery of his argumentation. Excessive minuteness of method and subdivisions is tantamount to confusion. He defines, distinguishes, demonstrates, advances, and discusses the objections, answers and concludes. This method of dialectics runs mad, wearies and perplexes, and the bewilderment is increased by the perpetual blending of theology and philosophy, of Augustine and Aristotle. At every line revelation is brought in to supply the insufficiency of metaphysics, while above the science of God and of man rises that of Christ, the Mediator, and of the practices that lead to salvation. All ideas are submitted to the Church, all acts, all powers, to papal supremacy. All orders of obedience, as, for instance, slavery, flow from predestination; wisdom and charity alike require us to compel those to return to order and submission who have rebelled against it: *Compelle intrare*.

Although incessantly mingling faith with reason, and subordinating philosophy to theology, Thomas still wishes to distinguish them and draw the line between their respective limits. One serves as an introduction to the other; reason ceases where faith begins, which is quite true, only not in the sense intended by Thomas. Provided it does not claim the right to the last word, philosophy is entitled to a separate existence, and it is useful to teach it apart. The faculty of philosophy founded in Paris in 1270 gave effect to these views, and originated that university scholasticism so jealously guarded by the old Sorbonne and by Victor Cousin again revived in France in the nineteenth century.

Still, beneath the theologian it is easy to detect the well-informed eclectic rationalist, fully convinced of the efficacy of reason, which he makes "the organ of divine grace."

Like Abelard, and after Aristotle, Thomas thinks there are no universal essences, but that genera and species are true judgments, concepts legitimately inferred from observation, while the reality of the individual substances is indisputable. Drawn from nothing by the divine act, they are what they are, and their *individuality* is determined by the extent that each occupies in space. Truth is "the exact correspondence of reality with thought." Its criterion is evidence, sensational and rational. Reason is a divine ray that comes to quicken the light of experience.

The psychology of Thomas is at once metaphysical and sensuous. The soul, an immortal substance, principle of life and of thought, is threefold and one; has three distinct powers, intelligence, sensibility, nutrition. There are no innate ideas, but only images (not like those of Democritus, from without), created by the imagination, preserved by the memory, and whence, by comparison and analogy, proceed general ideas.

His theodicy is purely rational. God, the necessary motor, is proved to exist by final causes and by the conception of the perfect being. Since he is perfect, the world created by him is the best of worlds; he has tolerated evil only to give effect to the good. The sovereign good, supreme end of existence, is obtained by obedience to the order established by God and represented by the Church. Nevertheless, there is a good in itself, recognised by reason, and which, aspired to by love, takes the name of the *beautiful*.

From all this it is evident that Thomas is the true founder of the "State philosophy," which was after all very little modified by Descartes, and which the government still requires to be taught in the schools of France.

Although several of its members were fiery zealots, the Franciscan school displayed greater variety in its methods and systems than did the Thomist and Dominican. In the thirteenth century it was especially characterised by a *realism*, moderate in the case of Alexander of Hales, the *doctor irrefragabilis*, an Englishman who

taught at Paris, and died in 1245, incoherent and verbose as professed by Raymond Lulle of Majorca, the *doctor illuminatus* (1235-1315), carried to the pitch of beatific mysticism by John of Fidenza, the *doctor seraphicus*, better known under the name of Bonaventura (1221-1274); lastly, logical and brilliant, as represented by the Englishman Duns Scotus, the *doctor subtilis* (1274-1308), the great adversary of the Thomists.

The "Summa" of Alexander of Hales need not detain us, pure mysticism being beyond the domain of philosophy. Nor are we much concerned with Bonaventura, while the "Ars Generalis" of Raymond Lulle, a chaotic medley of all the syllogistic common places, is far less interesting than his romantic life. But it is impossible to follow all the episodes in the eventful career of a man who, from being a reckless libertine became a zealous apostle, miracle-monger, and missionary, who professed at Montpellier, Paris, Genoa, Naples, who experienced many adventures in Africa, where he met a martyr's death when upwards of eighty years old.

Duns Scotus is perhaps entitled to greater consideration for his brilliant though brief career (he died in his thirty-fourth year), and for his vigorous antagonism to the eclecticism of Thomas Aquinas. But it is far from easy to give unity to the various opinions of this Alexandrian, or to justify the admiration of his contemporaries. A Realist beyond all others, Duns Scotus multiplied beings by personifying abstract ideas. For him, all genera, all the distinctive characters of individuals, become virtualities or entities, as he calls them, and which are something intermediate between form and matter. Thomas taught that the form of individuals, the individualising property, is determined by their matter itself. Scotus on the contrary holds that the form alone determines the matter, in virtue of a differentiating principle which he calls *hæcceitas* (the "thisness" of the thing), and which has just the value of the famous *virtus dormitiva* of opium. But enough of such fooleries.

In a certain fanciful independence or spontaneity of these imaginary principles Scotus thought he discovered an argument in favour of absolute free will of the individual initiative, and hence

of the merit or demerit of works. But, what is still more surprising, while this glorification of the human is made at the expense of the Divine will, Scotus delivers the world to the most capricious fatalism, which leads him to justify the sale of indulgences. Here is how he reasons or quibbles on the point: "If man is free, God is still freer; God creates not in virtue of his nature, but solely of his will. Hence he is in no way obliged, as Thomas asserts, to produce the best possible of worlds; he fashions it to his fancy, or according to his pleasure. Good is good, and evil is evil, because God wills it, and so far as he wills it. He might reverse the terms, and sanctify crime, for nothing can limit his power." But then what becomes of free-will and the merit of actions?

The really great mind of the thirteenth century was Roger Bacon (1214–1294), the *doctor mirabilis*, necessarily an isolated genius in an epoch which he overtops by his head and shoulders, the true precursor of the scientific method. His errors as well as his misfortunes—four-and-twenty years of imprisonment and persecution—were due to his Christian and scholastic education; but his inspirations, his marvellous penetration into the future, are all his own.

A native of Ilchester in Somersetshire, Roger Bacon should have been born in the time of his namesake Sir Francis Bacon. But he was the contemporary of Albertus Magnus, and belonged to an earlier generation than Aquinas, Bonaventura, Raymond Lulle, and Duns Scotus. Such anachronisms are occasionally seen in this "best possible of worlds." A brilliant pupil of the university of Oxford, he went about his twentieth year to complete his studies in Paris. But the scholasticism then in vogue had no attractions for him, and he took as his guide an unknown philosopher, said to have been called Petrus Peregrinus. But the portrait he has left us of that sage may possibly be imaginary, and in painting him he may have intended to paint himself. According to a summary of M. Emile Charles, Bacon describes him as "a man of solitary habits, who shrinks from fame, who has a horror of verbal contentions, and holds metaphysics in

great aversion. While others wrangle noisily about the universe, he passes his days in his laboratory, in fusing metals, in analysing substances, in inventing instruments useful for war, for agriculture, and the handicrafts. He draws his knowledge from sources closed to the vulgar; he possesses Greek, Arabic, Hebrew, Chaldean works; cultivates alchemy, mathematics, optics, medicine; he teaches his disciple unknown languages and sciences, and above all gives him the taste and habit of observation, so that he may despise nothing and make use of his hands no less than of his intellect. In a word, he is the master of experiments—*dominus experimentorum*.

Doctor, and a Franciscan friar (one scarcely knows why, seeing that he was rich and of noble birth), Bacon returned to Oxford, where he professed with great success for six years—(1250–1256). But his innovating zeal gives umbrage to his self-imposed masters. In 1257, Bonaventura, the “seraphic” general of his order, confines him to a convent in Paris, where the “discipline,” fasting and silence, combined with the privation of his books, pen, and pupils, were expected to cloud or kill that glorious intellect. But the genius of Bacon survived ten years of contumely and captivity; and when Pope Clement IV. ordered him, “notwithstanding all injunctions to the contrary,” to set forth his ideas in a work, without books, without resources, indifferently supplied with the mere necessities of life by a few lowly but generous friends, he composed in less than two years the “Opus majus,” the “Opus minus,” the “Opus tertium,” a cyclopadia of the sciences—(1266–1267). Scarcely is he restored to liberty, when his patron dies (1268), and he is fain to lie hid for ten years. But in 1278 the rancour of the Franciscans reaches him, and he disappears for twelve long years in some French or English dungeon. Again released in 1292, he begins, in his seventy-eighth year, a vast work, which is presently interrupted by death, and of which nothing remains except a few fragments in manuscript.

The cause of his sorrows and his titles to fame do not derive from his metaphysics or from his theodicy, although even these are more simple and reasonable than contemporary systems; still less

from his astrological superstitions and belief in the occult sciences. They must be sought exclusively in his critical spirit, in his method and in his views regarding the future of the sciences. It is here that he is a modern thinker. As to his enlightened conceptualism, his first and efficient cause, his active intelligence directing the operations of nature towards an end known only by God, all this he has in common with Abelard, Aristotle, and Averroes.

Bacon attacked and relentlessly exposed all the ecclesiastical and political abuses of the times—the servility of the legal body, the fanaticism of the monks, the morals of the prelates, the scandals of the Roman curia. He reduced to their just value the famous compilers and the ambitious constructors of ingenious theories. Himself a master of Greek, Hebrew, Arabic, Chaldean, he exposed the shortcomings of their erudition, whence their wrath. But above all, he pointed out the twofold vice of the scholastic method, the blind belief in texts and in ratiocination. He sapped the foundations of the whole fabric.

What is the authority of a book? How can the authority of a man, the tradition of an epoch, limit the initiative of other men, of other generations? "It is valid only so far as justified;" and it can be regulated by experience alone, whence it also proceeds.

Ratiocination is doubtless useful to draw from a true or false proposition the conclusions already contained in it; but it cannot establish the certainty of the proposition. Experience alone asserts and denies: *Hæc est domina scientiarum omnium et finis totius speculationis*—this is the mistress of all the sciences, and the end of all speculation. Metaphysics can be nothing but a summary of experience, "a sort of philosophy of the sciences, embracing the ideas common to them, and proper to give them their form, their limits and method."

Hence, neglecting Aristotle, setting aside the farrago of the commentators, matter and form, hidden causes, principles of differentiation, useless entities, he goes straight to nature and forms himself "above all things on the ideas resulting from his own experience." And if we overlook the God-creator, whom a Christian or a man of the thirteenth century could not reject, we

shall see that experience furnishes Bacon with three or four notions which will suffice to reform all physiology. Nothing exists except individuals and facts, the one composed of their respective constituent substances, the others produced by the relations between the substances and by contact of individuals. The aim of science is to know the properties of substances and individuals, the combinations of bodies and their consequences. One single individual, one solitary fact carefully observed is worth all the universals together. He foresees physiology; for images and intuitions he substitutes "reciprocal actions" produced between bodies and our understanding, through the medium of the nerves and the brain. From these actions spring ideas.

To proclaim the superior efficacy of experience does not imply any contempt of the treasures of experience acquired by the ancients. Bacon admires the Greeks, Aristotle above all, and awards to the Hebrews and Arabs an incontestable superiority over the Latins. But he wishes that their works be at least interpreted adequately, that their languages be taught in the schools. He accepts them as masters on the condition of outstripping them. "Should a man live a thousand years, he would always learn something, without ever arriving at perfect knowledge. . . . The most recent generations are the oldest, since they profit by the labours of those who have preceded them. What we call the old age is the childhood of the world." Pascal will tell us nothing better.

It is with a firm belief in progress that Bacon adopts the words of Seneca: "Nothing in human inventions is final and perfect. The most recent ages are always the most enlightened. A time will come when what is now hidden will be plainly revealed in consequence of the very succession of generations and through the continuously prolonged labours of humanity." The progress that he anticipates and proclaims has nothing to do with salvation beyond the grave; not that he gainsays any of the promises of faith, but the hallucinations with which Christianity beguiles itself have the least share in his thoughts. What he is interested in is man in the flesh, the earthly life, the resources of which should be

enhanced by useful knowledge and philosophy. And with such confidence does he describe future discoveries that one feels inclined to credit them to him.

It is certain that Bacon invented neither gunpowder (already known to the Arabs), nor steam, nor manageable balloons, nor the cork-jacket, nor the telescope, nor the means of abolishing death. But he expects that medicine and hygiene shall labour to prolong life; he calls on mechanics to produce vehicles which without horses shall run with a marvellous velocity; asks of the resistance of liquids a force capable of moving the largest vessels; imagines apparatus which shall enable us to visit the beds of rivers and seas without being drowned, machines provided with artificial wings for cleaving the air; lastly, instruments which shall "bring distant objects nearer to the sight, enlarge the minutest written characters at incredible distances, and bring the stars within the range of vision." If he did not actually invent these instruments of human power, he was worthy of being their inventor. Accordingly, posterity, for which he lived, removes him from the age that paralysed his genius, and transports him side by side with Francis Bacon to the threshold of modern philosophy and science.

THIRD PERIOD.—Ockam's *Nominalism*. Gerson's *Mysticism*.
The Imitation of Christ. *The Orthodox Conception of the Universe*. Dante.

The third period of scholasticism need not detain us very long, although it lasted, at least in France, till the time of Descartes. Each epoch, considered apart, has its special interest, which disappears in a general survey. It could serve no purpose, except to weary both the reader and ourselves, were we to reopen the question of Nominalism with Ockam and his school; or that of Christian Mysticism with Eckart, Tauler, and Gerson. Doubtless, the one were subtle reasoners, the others learned and religious writers. But all alike revolved indefinitely round an imaginary problem—the nature of being; or else round the question of the origin of ideas, a question which they could never solve, because they did

not seek its elements in experience. Whether they appeal to the authority of Aristotle without understanding him, or of revelation without limiting it, all alike apply to every subject certain cut-and-dry formulas which they have not even verified. If they occasionally catch glimpses of the truth, it is only by chance, and without being aware of it. Nearly all of them, and not the mystics alone, are brought to doubt reason, which they abuse, while very few suspect the emptiness of the object which they pursue. These last, all the more rare that their audacity met with but little toleration, hazarded in the Sorbonne, so early as 1348, certain theses that betray a glimmering of common sense: "We should arrive easily and quickly at certain knowledge were we to leave Aristotle and his commentators alone, and apply ourselves to the study of nature." Here is betrayed the influence of Roger Bacon. Or again: "We conceive the idea of God as the pre-eminently real being; but whether such a being exist or not we cannot tell." Peter d'Ailly (1350-1425) was evidently not very far from scepticism. Or elsewhere: "The universe is infinite and eternal; for it is impossible to imagine how being could proceed from nothing. But," adds M. J. Fabre, from whom we take these subversive propositions, "the revolutionary work was concealed below the surface, while the echo of sonorous and empty sophistries was everywhere resonant."

William Ockam (*doctor singularis, doctor invincibilis*) challenges consideration, inasmuch as he was to Thomas and to Duns Scotus what Abelard was to Roscelinus and to William of Champeaux, and because his vigorous polemics earned for him the animosity of both schools. A native of England, an Oxford student and a Franciscan friar, he went to Paris in order to attend the lectures of Duns Scotus, all of whose opinions he afterwards contested. He was a man of great energy, who took an active part in all the quarrels of the times. "Defend me with the sword," he said to Philip the Fair, "and I will defend you with the pen." And he wrote against the ecclesiastical power and the temporal claims of Boniface VIII. He escaped condemnation before the

Court of Avignon (1328) by a prudent flight, and took refuge in Bavaria, where he died in the year 1347.

His great principle is "that beings are not to be needlessly multiplied, because everything is accomplished in nature by the shortest roads." From this standpoint, he proceeds to treat as idle superfluities both the intermediate entities, the *quiddities* and *hæcceities* (see above) imagined by Duns Scotus, and even the ideal images of Thomas Aquinas. According to him, general ideas have absolutely no existence, either in the objects themselves, or in God. Nothing exists but the intellect, and the thing known to it, to go beyond which is merely to lose ourselves in the absurd. He is a subjective sensualist, after the manner of Hume or John Stuart Mill. But as he despises science, his range is limited. He affirms only what he verifies ; and as he is not convinced that the reality corresponds to the ideas conveyed to us by the objects, he would fall into a scepticism bordering on atheism but for faith, which comes opportunely to the rescue. Lastly, with Aristotle, he gives up all logical demonstrations of the immortality of the soul, and all direct proofs of the existence of God, and for this he is entitled to our gratitude.

He had great success and secured a large following. The realists, Walter Burleigh, Thomas of Canterbury, and Thomas of Strasburg, do not seem to have been equal to the contest with the Ockamists, Durand of Saint-Pourcain, contemporary of Ockam, Gabriel Biel (fifteenth century), and John Buridan, who, so early as the fourteenth century, introduced nominalism into the University of Paris, and who thought he had proved free will by his apologue of the ass placed between a pail of water and a measure of oats.

The only possible issue of such barren discussions, at least the only one open to minds distracted and disheartened by the schism and the Thirty Years' War, was the asceticism of the *Imitation*. This much-vaunted work, long attributed to Gerson (1362-1429), is a manual of conventual life, composed probably towards the end of the fourteenth century by some wearied *realist*, or some politician

disgusted with the world. It bears, in the highest degree, the impress of an intellectual and social condition analogous to that which brought about the birth of Christianity. It is a supplement to the Gospels, drawn up for the use of intelligent beings anxious to become "poor in spirit," and an air of genuine sincerity enforces its invitations to a pure and innocent life. But what encouraging advice can be expected from a moralist who seeks hope in the depths of despair, aspires to heaven from the bottom of the abyss whence he refuses to rise? Of what avail a moral system, however austere in itself, which is impracticable on earth, which places the ideal perfection in death? Such a system is worse than useless; it is positively baneful, because it is essentially disheartening. It is indulgently accused of exaggeration in its sublimity, nor would it be difficult to detect excess and injustice in its negation of human nature and of society. We may no doubt be told that it is the moral code of the Gospel, and this we readily admit.

The close of the Middle Ages is with good reason referred to as the time when the marvellous invention of printing begins to multiply thought indefinitely, when the inheritance of Byzantium, antiquity rediscovered and shedding light on the past, enables man to resume the onward path towards civilisation, and rescues him from Christian vagaries, when Gama and Columbus widen the realms of the globe, and Copernicus opens up the heavens (1543). The intellectual and moral atmosphere now seems to be rendered healthy by quickening currents flowing from the past, from the depths of the Atlantic, and from the boundless starry regions. There is breathed a fresh air, charged with tentative aspirations, glorious, rebellious, and irresistible zeal. And while in the intoxication of an awakening curiosity, the mind is disturbed by every fresh impulse, eager all at once to grasp all the treasures still but dimly perceived, Gutenberg is silently marshalling his movable types, wooden and leaden battalions, destined soon to summon the great army of liberty to the assault of despotisms, traditions, and prejudices.

If, before entering on his new career, before approaching the positive study of the real universe, man looks back for a moment

on the world he is forsaking, fantastic and painful creation of a dream that has now lasted for thousands of years, he will detect between the descending circles of the lower regions, and the fleeting visions of elysium, a vaguely-defined land, parcelled out in a thousand plots, cultivated for the exclusive benefit of king, feudal lord, vassal, churchman, and legist—a land yielding little to the tillers, much to the collectors of tithes, the farmers of the public taxes and imposts—in a word, the privileged few—a land steeped in blood and tears, wasted by fire and sword, overawed by strongholds, covered with walled, distrustful towns, whose gates are closed at sunset, while armed burgesses keep watch on their battlements. Here and there rise more favoured cities, where is centred all that has survived of the arts and sciences in the world, where reason runs riot in heresies, exhausts itself in hair-splitting syllogistic disputations, or in the construction of theodicies, where echoes the voice of famous doctors, cadenced by the shrieks of the pupils under the lash. Over all this turmoil and confusion Rome spreads her nets, entangling the weak, allowing the strong to escape when they do not themselves stumble into her meshes. She is ever watchful, chastising, overawing, crushing to death. She oppresses the mind, shackles the body, meddles with all social relations, both public and private. A formidable accomplice, she reckons and shares the plunder with the armoured knight and sceptre-bearer, while reaching out a bold hand to the crowned head. The more daring temporise with her, because she is the soul of tyrannies, the mother of meek submission. Myrmidons of Church and Empire are the truculent cavalier, the “scythe-bearing vampire” assuming all forms, the lean Proteus, unmasked by Holbein, realised in the thronged visions of the thoughtful Orcagna. But he is a fearful minister, mowing down victim and executioner, innocent and guilty indiscriminately. He everywhere reaps his harvest, filling the furrow recklessly with a crop of fustian, purple and fine linen, strewing the ground with bucklers and spurs, with crosiers, swords, tiaras, and diadems. Then rise from below or are hurled from above all those hierarchies of fiends and angels, borrowed from the pantheons and philosophies, adopted by the

Church from Persia, Assyria, Judea, Alexandria, and Byzantium. These ravishers of the dead wrangle over the souls hovering above the grave, and bear them away to dismal or bright regions, amidst transfigured mortals and fabulous animals, consigning them either to eternal bliss or eternal torments. Aloft, on the steps mounting heavenwards, are seated the resuscitated, hearing without ears, seeing without eyes, speaking without tongue, and living without food; and with them are those vague entities, the thrones and dominations, the virtues and ideas of Plato; all surmounted by two men and a dove, who are God, and a woman who is deified. Here also is Gehenna, more thronged than purgatory and heaven together, because "many are called but few are chosen."

A writer of genius, at once an orthodox Peripatetic, an admirer of Thomas Aquinas, and a mystic of the Bonaventura type, has preserved for posterity this extraordinary vision, in which are summed up mediæval society, science, and belief. This writer was the Florentine, Dante Alighieri, creator of the Italian language, author of the "*Divina Commedia*." He was doubtless himself unaware of the profound irony contained in this title, and he never suspected that his triple and formidable edifice was nothing more than the visionary work of a long delirium. He fancied with perfect sincerity that he was painting the universal reality, and his illusion, imparting to his epopee such intense life, supreme triumph of art, also renders it the authentic monument of a philosophy, the minster of scholasticism.

CHAPTER IV.

THE RENAISSANCE.

Platonic School: Gemistus, Pletho—Marsilio Ficino. Peripatetics: Pomponazzi. Humanists and Sceptics: Erasmus—Rabelais—Montaigne—Charron—Sanchez. Mystic Pantheists: Giordano Bruno—Campanella. Atheistic Materialists: Vanini.

A FRESH impulse was needed to enable humanity to escape from the scholastic confusion, and shake off the germs of consumption,

which threatened to reduce it to intellectual imbecility. The revival of the thirteenth century had been determined by Jewish and Arab erudition ; the true revival of the fifteenth century was stimulated by Byzantine learning. Mussulman Spain had bestowed on the West a complete Aristotle, though somewhat distorted by the Cabalistic, gnostic, and Alexandrian tendencies of the oriental commentators. But Byzantium sent to Italy, besides the text of Aristotle, with its distinctly Peripatetic scholiasts, Plato, the pagan and Christian neo-Platonicians, and all that still survived of the old philosophy. Hundreds of humanists forthwith fell upon these treasures, eager to classify, furbish up, and set them off to the best advantage. The movement resembled that of a hive at work.

The human mind had recovered its buoyancy, and its gratitude is due to those who enabled it to do so. But its energies, at the outset, concentrated on the texts and ideas of another age, and confined within limits which it fancied it was enlarging by redoubling its activity therein, very seldom result in original conceptions. Doubtless discussions were held *de omni re scibili*, but always in the footsteps of bygone authorities and in the language of the schools, whose sway was practically continued down to the end of the seventeenth century, and even beyond it. A show of activity was made in every direction, but in a Christian atmosphere and within the Christian horizon. Like those animals who take their colour from the soil they live on, all novelties assumed a theological aspect. Opinions regarded as exceptionally bold ended in heresies, but reform went no farther. Fatal aberration imposed on reason by faith !

Luther, the turbulent and incoherent mystic, the rigid and pitiless Calvin, may have flattered themselves that they were breaking Catholic unity, and doubtless they did break it. But they failed to perceive that by restricting they strengthened it, that by curtailing it they gave it back a life that was ebbing, a more concentrated and vigorous life than before. The true limits of Christianity they never for a moment thought of overstepping. They plunged desperately into dogmatism back to Augustine and Paul himself,

and all their efforts amounted to nothing beyond a mere recoil. Doubtless, by proclaiming the free interpretation of a single text, they unwittingly and involuntarily present human thought with a slow means of outflanking faith and taking refuge in science, but a science still with a subtle anthropomorphism savouring strongly of deism and religiosity.

How much more far-seeing, and how much more beneficial to humanity, were those Charrons, who, without running tilt against the windmills of catholicity, without jostling too violently against the already tottering yoke of an orthodoxy issued to order, glided smoothly between heretics and fanatics alike with the saving clause: "What do I know? . . . Perhaps." These were the true emancipators of thought? They awaited the advent of science; they felt it coming, and opened the door for its reception.

Positive science alone could dispose at once of the pretensions of logic and the sham humility of faith; it alone could reveal to man his proper field of action and his destiny, while leading him by a thousand ways to the conquest of truth. And science was now born, at one stroke effacing the heavens of Plato, Aristotle, and Jesus, and sending adrift, like an escaped balloon, the "Kingdom of God," the "Heavenly Jerusalem," and suchlike visions. But how timid it still is, how little conscious of its strength, apologising for having detected glimpses of the truth, still paying humble deference to Joshua and all the believers in a sun standing still, and meekly kissing the sacerdotal robe and the sword, the sack and the rope, on their knees before those mitred and crowned murderers, still worshipped by some few ridiculous imbeciles. Witness the scruples of Copernicus, the mysticism of Kepler, Tycho's compromises; witness the genius of a venerable Galileo, cowering under the blood-stained hand of an ignorant Inquisition!

Assuredly the fate of metaphysics and religions was sealed from the day that the six words, "the earth revolves round the sun," were uttered by a Canon of Thorn, from the depths of the swamps of Poland. But they will not die all at once, nor relax their hold on the prey without many a struggle and conflict. Even now, gimpelled to temporise, to feel their way, and fain to welcome the very

science they would like to crush, they still cling to ignorance, the puppet they possess in common, which they bandy one to the other, over which they have wrangled for some fifty thousand years.

In any case the Renaissance is the first stage of the modern intellect towards its still remote enfranchisement. It now resumes possession of the past, on which it takes a firm stand. We feel—at certain times it feels itself—that if it recedes it is only to advance more vigorously in the future.

The philosophy of the fifteenth and sixteenth centuries seems at the outset little more than an energetic revival of scholasticism. But the already enervated philosophy of the schoolmen dies out with Gerson's mysticism and the *Imitation*, whereas the Renaissance leads up to Bacon and Galileo. While touching lightly on its numerous Hellenists and humanists, we shall devote more special attention to those who have originated any general conceptions, to those who have preferred experience to book-lore, especially to the independent thinkers whose boldness cost them their security, their freedom, and their lives. However questionable may be their doctrines, they at least possessed a relative value, as shown by the umbrage of the Church.

In the Christian East philosophy, driven from the schools by Justinian in the sixth century, had taken refuge in the heresies which raged so furiously in the Byzantine world. Still more barren than that of the West, Greek scholasticism assumes an almost exclusively religious aspect. Nevertheless, the Alexandrian polemics of Philopon (seventh century), the critical learning of Photius (ninth century), and in the eleventh the violent theoretic struggle between the Peripatetic Xiphilinus and the Platonic Psellos, clearly show that classic antiquity had still remained the basis of education and instruction, and that all the systems at all reconcilable with Christian metaphysics remained familiar to all well-informed Byzantine teachers. Nor could it very well be different. For did not the libraries of the East still preserve the original text of Aristotle and of Plato, of Anaximander, Plotinus, Porphyrius, Jamblicus, Proclus, and their successors?

The great schism of the East, in itself sterile enough, had moreover the deplorable result of interrupting the old tradition and civilisation at the very moment when the Western intellect, overwhelmed in a chaos of barbarism, was beginning to return to self-consciousness. Hence it involved Europe in two hundred years of tentative efforts, and three hundred of barren labours on a surreptitious Aristotle, crossed by Augustine. The crusaders, with good reason suspected by the Comneni and the Paleologi, were not a learned race. Those truculent heroes, marching through Constantinople, and carving themselves out principalities from the empire, busied themselves far too much in disintegrating the last resources, and demolishing the last bulwarks of Christianity in the East (for such was really the result of the crusades and of the ephemeral Latin conquest), to think of copying or translating the masterpieces of the old philosophers. At last, however, the formidable encroachments of the Turk, scarcely arrested for a moment by the Mongolian invasion, compelled the Greek emperors to turn their eyes towards the West, which had so badly defended them. Efforts were made to reconcile the two communions, and it was one of those otherwise fruitless attempts at reconciliation that again united the ties formerly torn by the schism.

The revival of Greek learning in Italy anticipated by about twenty years the fall of Constantinople. In 1429 or 1430 Theodore Gaza, of Thessalonica, and the Cretan George of Trebizond, translators and partisans of Aristotle, came and settled in Venice, Florence, and Rome. Then came, invited by the Council of Ferrara, the Platonicians Gemistus Pletho and Bessarion, and the Peripatetic Gennadius, who was patriarch of Constantinople under Mahomet II. (1453). The first two settled in Italy, and Bessarion, who had declared himself for the union of the two churches and the Roman supremacy, was made a cardinal, and enjoyed the favour of the popes. Of this group of immigrants, the most enlightened and liberal-minded was Gemistus, invited by the Medici to Florence, where he taught with great success the Platonic philosophy in the Alexandrian sense. In a new lost treatise, modelled on the *Lysis* of Plato, he dared openly to prefer the Greek genius to the

Christian conceptions, nor had he much difficulty in showing that all religious metaphysics were borrowed from the ancient philosophers. Gennadius, Gaza, and George of Trebizond answered him* with a violent attack on Plato. Bessarion also took part in the contest, but failed all the more to reconcile the litigants, inasmuch as he was himself an avowed Platonician.

Before the end of the fifteenth century the Byzantine education had already borne fruit, and the direction of the philosophic sects had passed from the Greeks to the Italians, Spaniards, and Germans. Amongst the idealists distinguished lights were Marsilio Ficino, of Florence, an unwearied translator, a determined eclectic, constantly bent on reconciling Plato, Pythagoras, Proclus, Jamblicus, Orpheus, and Hermes, altogether more Alexandrian than Christian, both Picos della Mirandola, famous for their vast but superficial knowledge, and Nicholas of Cusa, whose scepticism on the origin of knowledge brought him back to the supreme one of Pythagoras and Parmenides. Amongst the disciples of Aristotle occur the names of Achillini, Pomponazzi, Simon Porta, Paul Jove, Julius Cæsar Scaliger, and the Spaniard Sepulveda, the apologist of slavery. But of all these distinguished writers Peter Pomponazzi of Mantua, (1462-1525) was almost the only one who thought for himself and deserved the name of philosopher.

The essence of his teaching is summed up in the brief maxim of Cremonini, one of his disciples: *Intus ut libet, foris ut moris est*—"within as you please, outwardly conform to usage." Nor was a little prudence misplaced at a time when usage had the stake for its sanction, and then it could be said of Pomponazzi, that he might be forgiven as a man, but should be burnt as a philosopher. He submitted beforehand all his doubts and denials to the authority of the Church, thus converting his orthodoxy into a precarious breastplate. But how often he betrayed himself! When he said: "As a Christian I believe what I cannot believe as a philosopher or servant," his audacity surpassed even his hypocrisy. Hence it could be said of him that he felt the sword hanging over him all his life, and his work on the soul was burnt by the public executioner.

Pomponazzi never showed himself a more respectful son of the Church than when attacking its fundamental doctrines, when his reasoning, going beyond Christianity, assailed the very principles of religion.

"The dictates of religion," he wrote, "like all else in this world, are subject to change and destruction. The effects of faith often seem to differ in nothing from those of the imagination. The aim of religion is not the search after pure truth; it is a practical influence, accompanied by promises and threats calculated to shake childish and crude intellects, which like the ass are forced by blows to bear the burden." What more exact definition of Catholicity!

Pomponazzi could afford to give up the moral direction of societies and individuals to Christianity, and was able to offer the spectacle of an edifying death to his contemporaries, and especially to his disappointed enemies. But posterity has already forgotten this, and only remembers him as the man who separated science from theology, who claimed for philosophy the right "to appeal to nature whenever natural reasoning suffices to explain phenomena, however extraordinary they may appear in themselves;" lastly, who wrote: "It would be ridiculous and absurd to despise the visible and the natural, in order to take refuge in an invisible whose reality is warranted by no well-grounded probability;" and elsewhere, "It is wise to prefer the evidence of the senses to those of the understanding."

Another instance, more genuine than his affected regard for Christianity, was his loyalty to his master, the infallible Aristotle. But even from him, Pomponazzi borrows his theories and arguments only in confirmation of his own personal conclusions.

All his efforts were aimed at the immortality of the soul, providence, and miracles. Precisely because with Aristotle he accepts the hypothesis of an active, universal, and eternal reason, he rejects the immortality of the individual reason. "The soul," he said (for he believed in its existence), "is intimately connected with the body; it arrives at the universal only through the particular; it thinks and imagines through the senses alone; it acts only through the members and organism of the body, the blood

and vital spirits; no part of the human spirit can do aught or has any life independently of its action in concert with the body." And he concludes that, "in the proper and absolute sense of the term, the soul is mortal."

He denies miracles regarded as events contrary to the natural order, and if in a fit of orthodox irony he admits the prodigies of Moses and of Christ, it is in order to remark that religions have need of miracles, consequently that for those religions which cease to perform them, a not very distant end may safely be predicted.

He denies Providence, apparently inclining towards the pantheistic *necessity* of the Stoics, which has a strong resemblance to scientific determinism. But he delights in nothing more than in putting his finger on the palpable contradictions of Christianity, which consigns us altogether to fatality while pretending to withdraw us from it; for, "Providence excludes liberty." Still widening the breach, he presses forward to assail a God who might have made a world containing none but the good, but who nevertheless created ours for "a majority of the wicked." "The Church," he says, "bids us rescue from error and vice all who have erred or gone astray; but God being all-powerful, and foreseeing from eternity all the errors of mankind, why does he not deliver them from their imperfections? And neglecting to do so, how is it that he does not sin, seeing that this very omission constitutes a sin for his creatures?" Here is a dilemma which retains its full force for those who believe in the absolute good and evil.

The sixteenth century is a Babel, not of tongues, for the learned still continue to write in Latin, but of more or less clearly-defined or mixed doctrines, all revived from antiquity, and much more valuable for the thought involved in them than for the individuals advocating them. The confusion is still further intensified by the varied, intricate, and sanguinary clashings of the protestant groups and orthodoxy. It is a universal chaos in which the school of Pomponazzi alone preserves some degree of consistency. Side by side with the true Peripatetics there flourish partisans of the Arab Aristotle, of the school of Averroes, such, for instance, as Achillini of Bologna (eb. 1572), and Cassirino of Arezzo (1509-1503), more

commendable for his physiological discoveries (action of the lungs) than for his incoherent pantheism. Amongst those who reject Aristotle, besides the Platonicians Ramus, Tauréllus, Goclenus, Patrizzi, the Stoic Justus Lipsius, and such Neo-Platonicians as Michael Servetus and Giordano Bruno, mention should at least be made of a whole series of mystics and cabalists, such as Reuchlin with his Jewish tendencies, a lineal descendant of Philo, Agrippa, who successfully criticises the scientific anarchy of his epoch, the obscure Paracelsus, the ecstatic Lutheran Weigel, the infatuated magician Jerome Cardanus, lawgiver of the occult sciences, the Englishman Robert Fludd, the theosophist Boehme, known as "the Gorlitz shoemaker," and the *realistic* physician, Van Helmont, all traceable to Jamblicus, to Pythagoras, not to say Orpheus himself. More attention will be claimed by the sensualists Telesio, born at Cosenzio, in the kingdom of Naples (1508-1588), and Campanella (ob. 1639), more however on account of their intentions than of their theories. Both aim at establishing philosophy on the direct study of nature and the living organism, and are accordingly the successors of Roger Bacon, and the forerunners of Francis Bacon, who quotes Telesio approvingly. But this thinker scarcely gets beyond the hypotheses of the old Ionians, and like the Eleatic school, like Aristotle himself, he assigns to heat and cold a preponderating part in the constitution of the universe.

Pending the co-ordination of the positive sciences by Galilèe, the wisest writers were unquestionably the critics after the manner of Erasmus, and such rational sceptics as Sanchez, Rabelais, and Montaigne.

Erasmus, who occurs first in point of time (1467-1536), does not seem at first sight to have professed any personal opinions in philosophy. He was a Christian deist, an eclectic rationalist; but he never touched on any of the great problems, and his defence of free will against Luther has little to recommend it, beyond a certain elegant triviality. Nevertheless he rendered greater services to free thought than a hundred Thomists, Scotists, or Occamists together. His whole life was a desperate and dangerous struggle

against scholasticism and theology, pouring forth an inexhaustible stream of sarcasms against pedantry and fanaticism, against logical hairsplitting and religious superstitions. He lashes all abuses and excesses, while preaching tolerance as the first condition of freedom. His commentaries on the sacred and profane writers, while on the one hand reviving a love of antiquity so contrary to the false Christian system, accustom the mind to criticism and exegesis. His collections of wise saws and apophthegms introduce into the moral order more just and liberal views than those of the Gospels, and his ideas regarding the education of youth still deserve the serious consideration of all opposed to university routine.

Erasmus was one of the far from numerous enlightened minds that held aloof from the Protestant schism, his foresight preserving him from such a false step. Quite as much a reformer as Luther, Hutton, or Beza, he defended them in the name of freedom of conscience, notwithstanding their personal attacks on himself. But he declined to take the responsibility of a rupture so disastrous to the peace of the world, and so favourable to a useless revival of the religious sentiment. He saw farther ahead than those violent sectaries, and his caution was bolder than their rashness. The underlying principle of his thought is revealed to us in the last pages of his exquisite treatise on "The Praise of Folly." No one better than Erasmus has shown in a playful manner the *folly* of Christianity, that is to say, of religions. It should also be noted that in his precise and refined language, folly is synonymous with the Greek *μωπία*, or the Latin *stultitia*, that is, stupidity.

The philosophy of Rabelais is that of Erasmus, treated more broadly and in more vivid colours. All are familiar with the satirical epopee in which he assails with all his energy the tyrannies of the schools, the church, politics, and the law courts. But, like Erasmus, he declined to confine himself, as so many of his friends had done, within the narrow limits of any sect or special form of religion. His motto was "knowledge and freedom," and his vague-ism, bolder for the times than modern Atheism, is somewhat refuted by his burlesque descent to the lower regions, and must be judged by his last words: "I go in search of a great perhaps."

Rabelais doubts only of heaven and the unknown, whereas the scepticism of Montaigne (1533-1592) extends to all nature, to things and doctrines alike. But it is a special scepticism, in which we must not expect to find either the philosophic rigour of an *Ænesidemus*, or the moral dryness of a Charron. Montaigne avoids nothing except what he is really indifferent or antipathetic to, and especially what may disturb the peace of his life. An epidemic breaks out in the town of which he is mayor, and he takes care not to expose himself to it, and in the same way he accommodates himself to the religious and political atmosphere he is fain to breathe. Subject to the Church and to royalty, he keeps aloof from all reform and from all revolt. Beliefs and institutions are for him secondary matters, which depend on custom and have no more than an historical interest. Once ensured as far as possible against the minions of the law and beggars, against princes, judges, soldiers, or monks, he feels himself valiant and at ease, and moves from his library to his window, comparing what he reads with what he sees. Wisdom for him consists in a universal curiosity.

Though certainly no hero, Montaigne must not be condemned either as an egotist or a misanthrope, from which he is alien both in head and heart. He had friends whom he could love, while his devotion to the memory of La Boétie, and his legacy to Charron, show that he was capable of tender and solid sentiments. A moderate Epicurean, after the manner of Atticus, he can enjoy, like Horace, the maxims of Aristippus, and the precepts of the Porch. Nor is he indifferent to aught human—taking a direct interest in all the phases of life, and all the phenomena of nature. He observes, perhaps with equal pleasure, the actions of man and beast—noble deeds and base passions, greatness and lowliness, but his mental indifference excludes neither discrimination nor preference.

From the varied and shifting scenes of life he does not draw the morose lessons of Heraclitus, yielding neither to gloom nor still less to impassibility. His moral system, if not very severe, is none the less pure, being simply natural and comprehensive. Customs

which, combined with temperament, is the fleeting standard of morals, is also the cause of progress, at every epoch supplying the well-attested elements of ever more elevated, wiser, and more solid conceptions. But its progress is not uniform, being subjected, like mankind itself, to reactions, to protracted or passing aberrations. And so with the moral code which follows or flows from it. At heart Montaigne is convinced that the Christian era marks the introduction of a sad decadence. The true religion, which he leaves untouched, was very far from adding anything to the wisdom and virtue of the ancients. We must go back to Plutarch, to Cicero, Lucretius, and even to Socrates and Zeno, in order to rediscover the true source of humanity and civilisation. Man must before all be studied under all his aspects; with all his ethnical varieties; his passions; his faculties, both spontaneous and acquired; he must be compared with the animals, of whom he is the brother and master; account must be taken of all the fatalities and accidents by which he is surrounded, which obey him or sway him. Abstract reasoning must be given up for a deeper study of the essences of things, and the small minds must be disregarded which occupy themselves with scholasticism and theology. Whether benefiting by past experience or adding to it the results of his own sagacious and penetrating observation, Montaigne lives altogether in the concrete and complex realities of existence. He has too much to study to arrive at any definite conclusions or build up a system which might be again overthrown or indefinitely modified by the morrow's experience. He considers that philosophy is made every day without ever being perfected. And was he not right, no less for his own than for many other epochs? But to the practical questions, What are we to think of man and the world? What course are we to adopt? Montaigne replies: Here is what has been thought—here is what now is, what has been; choose for yourselves and act at your own risk and peril; but be ever careful.

Thomas Aquinas, Bonaventura, Raymond Lulle, Ockam, Paracelsus are now no longer read; the learned alone open the pages of Aristotle and Plato, of Descartes or Spinoza. But Montaigne will always be read, because he is sincere and true, varied as is the

world and life itself; because he never mounted the stilts of metaphysics. Limiting himself to the earth and mundane matters, he never risked falling from a conventional heaven.

Charron (1541-1603) proceeds directly from Montaigne, who constitutes his very essence. But while condensing, Charron has rendered him dry and arid, allowing all the grace of a free spirit to escape, and falsifying by confining him to a severe method. He is thus reduced to a curtailed and imperfect Montaigne. It has been too often asserted that the treatise *On Wisdom* is the natural conclusion of the "Essays." It is certainly a conclusion, but one drawn by an overstrained, exclusive, and utterly unsympathetic disciple, the responsibility for which can in no way be referred to the master. Lawyer, canon, itinerary preacher, author of the extremely orthodox "Christian Discourses" and of a treatise on the "Three Truths," Peter Charron, or Le Charron, son of a Parisian bookseller, and one of five-and-twenty children, did not make the acquaintance of Montaigne till about the year 1586 or 1587. He was then forty-six years old, and his age had excluded him from several convents where he would have wished to repose from the labours of a long and somewhat sterile missionary life. Having for twenty years assiduously served up all the commonplaces of jurisprudence and theology, for the benefit of parliaments, kings, and princes, he considered he had spoken enough to remain henceforth silent. And in any case, of what avail had been his homilies? How far had they modified the course of events, diminished the vices and miseries born of human nature and the social condition? Montaigne now unrolled before him the picture of the world, the incessant ebb and flow of tenets, doctrines, and actions, under the sway of custom and fanaticism. Charron was satisfied, and passed at once from unreflecting belief to extreme scepticism; embracing it, however, rather with the zeal of a convert than with the liberality of an inquiring and unprejudiced mind.

"Truth," he said, "is not a thing which can be taken and manipulated, still less exclusively possessed by the human intellect. Error is introduced into the soul by the same channels as truth."

the mind having no means of distinguishing one from the other." Reason, experience, the evidence of our fellow-men, all is shifting and changeable. "What is wicked, unjust, detestable in one place is right, justice, and honour elsewhere, nor would it be possible to cite a single law, custom, belief, everywhere universally received or rejected." All religions are alike "offensive and alien to common sense. Whatever be said to the contrary, they are upheld by human hands and means. The nation, country, or place determines our religion; we belong to that prevailing in the place where we have been born or brought up; we are circumcised, baptised Jews, Mahomedans, Christians, before we are conscious of being men." What should we do? Suspend our judgment, hold ourselves free from all parties and sympathies. "The supreme remedy is to lend ourselves to others, and give ourselves to ourselves alone, to take matters with the hand, not with the heart, to cling tenaciously to very little, and keep ourselves always to ourselves."

Thus it is that scepticism ends in a mystic egotism, in the false ethics of the *Imitation*, nay more, with Charron, in intolerance and despotism. While declaring that we should "enjoy philosophic liberty," Charron keeps it all to himself, regarding it as useless and baneful for the rest of the world. And so common is this inconsistency amongst sceptics, that one is fain to look upon it as a natural consequence of scepticism.

Montaigne says, "What know I?" and Charron, "What matter?" and between the two there is an impassable gulf.

But notwithstanding its false moral conclusions, the treatise on *Wisdom* must not be regarded as having been altogether useless to mankind. Its immense success shows at once how thoroughly it harmonised with the general current of thought, already wearied with religious discussions and scholastic nonsense. It moreover went to the very foundations of faith and religion; and, lastly, in the name of experience, though badly interpreted, it denied metaphysics. It taught that "all knowledge enters the mind through our first masters the senses, beginning and ending with them; for they are the beginning and end of everything." Charron places the soul in "the ventricles of the brain." Instead of proclaiming

the sublimity of the mind, he advises us to study its mechanism and conditions. He observes that animals think and reason as we do, and he endeavours to classify human knowledge. He pronounces no opinion either on the nature or the destiny of the soul, but here is how he speaks of immortality: "The immortality of the soul is the most universally, religiously, and plausibly accepted doctrine by all (I refer to an external and public profession, not to an inward, earnest, and true belief), the most usefully believed, the most feebly proved, and established by human reason and methods alone."

In a word, scepticism is the beginning of *wisdom*, and can be nothing else—a mere preliminary. This truth, which Charron failed to perceive, seems to have been understood by the Spaniard, or Portuguese, Sanchez (1560–1632), who is wrongly regarded as the most determined of sceptics. An admirer of Aristotle, but at the same time as opposed to metaphysics as he was to dialectics, Sanchez proposed to study truth directly, to ascertain whether we know, how we know, and which is the method of knowledge. Unfortunately, he never completed his great work, of which we possess the introduction alone, where he assails with extreme boldness "the chimeras and baseless fictions" blocking the threshold of science. The real object of the learned writer was misapprehended by the curious title of this treatise: "Tractatus de multum nobili et prima universali scientia, quod non scitur" (On the most noble and first universal science, that nothing is known). The scepticism of Sanchez is radical, but only provisional, hence its advantage.

Before coming to the period of observation and experience, the modern era already ushered in by Bacon and Galileo (born 1560 and 1564), a passing notice is claimed by four thinkers, who, though doubtless original, still belong by their doctrines and misfortunes to that transitional period in which the awakened intellect still struggled against mediæval beliefs and methods, without succeeding in breaking away from them. Such has been the character of all the doctrines and thinkers of the Renaissance, notably of Ramus, victim of scholasticism; of Bruno, Campanella and Vanini, martyrs of the Inquisition.

Ramus (Peter La Ramée), born in 1515, and murdered during the St. Bartholomew massacres, was no philosopher, but rather a humanist, grammarian, and logician, who exercised on his epoch an influence apparently out of all proportion with his work. In order to understand the enthusiasm animating his disciples and adversaries, we must go back to the Paris of the sixteenth century, the capital of scholasticism. Ramus assailed in his very stronghold the mediæval Aristotle, revolutionising the barbarous and puerile method of the eternal "distinguos," and consequently the whole system of instruction. But his victory cost him his life. Some of the professors whom he had refuted caused him to be shamefully murdered in 1574, taking advantage of the general massacre, and under pretext of his Protestantism, Ramus having made the mistake of embracing the reformed religion.

Although maintaining that Aristotle had enunciated nothing but error and falsehood, and although he passed his whole life in refuting the Peripatetic dialectics, Ramus was never anything more than a rebellious pupil of Aristotle. All his fire and fury ended in nothing but a simplification of logic and a commendable theory of the syllogism.

Far more interesting, deeper and more daring, in our opinion, was the unbelieving monk, the apostle of the *natura naturans*, Giordano Bruno, poet and mathematician, preacher and astronomer, who in a series of Latin and Italian writings, in prose and verse, suppressed as fast as they were published, developed bit by bit a system as complex and true in its details as it was simple and false as a whole.

Born about the year 1548, in the Terra di Lavoro, Giordano began his career with the most zealous orthodoxy, entering as a Dominican friar into the special order of the Inquisition. But either the passionate love of nature and his own meditations, or the study of the Arab Neo-Platonists and the successors of Marsilio Ficino, or else the sight of horrors daily sanctified in the name of Christ, or perhaps all these things combined, soon weaned him from the religion of his youth, diverting his love and his worship to another ideal. It was about his thirtieth year that he

succeeded in escaping from the "narrow and dark prison in which error had so long kept him confined." For some ten years he is met ever on the move, in Italy, Switzerland, France, England, Germany, in all the university towns, everywhere welcomed by the great, everywhere admired by the young, in the end banished from every place. The frankness of his opinions ever destroys the effect of his personal charms and brilliant eloquence. Dogged, watched, at last betrayed by a certain Mocenigo, by whom he had been attracted to Venice, he pines for six years (1592-1598) under the "Piombi;" handed over to the Holy Office, he mounts the scaffold after two years of tortures, condemned "to be punished with all possible lenience, and without the effusion of blood." His heroic fortitude never quails throughout this interminable agony, and his last words are: "You dread more to utter than I do to hear my sentence." The execution of Bruno ushers in the seventeenth century, and his abashed judges, already alarmed at the new times, conceal instead of trumpeting his death, so that for eighty years his fate remained shrouded in mystery.

Bruno was not condemned for his teaching, with which the old and more recent Fathers of the Church were familiar, and which many of the schoolmen had contrived to reconcile with orthodoxy. But this knight-errant of pantheism furiously assailed the Church, sparing neither Geneva nor Rome, preaching a new religion, nay more, everywhere opposing freedom to authority. "Why," he wrote, "always appeal to authority? 'Between Plato and Aristotle who shall decide? The supreme judge of truth is evidence . . . Authority is not without but within us.'" Thus he undermined all the sham foundations of society; hence it was that the universities repelled him, princes proscribed, Protestants rejected, and the Church burned him as an atheist.

The Church saw clearly enough that pantheism is equivalent to atheism, nor is the equation in the least affected by the enthusiasm and religious sentiment so conspicuous in Bruno. Parmenides, Zeno, Plotinus, and Spinoza are quite as much atheists as Protagoras, Straton, or Lucretius. A god reduced to a gift of universal virtuality ceases to be anything, for he neither adds

to nor takes aught from the reality of things. Pantheism is metaphysics applied to materialism, the quintessence of anthropomorphism blended with the universe. Its god is the *nature* of Lucretius endowed with the *will* of Schopenhauer, the efficient and final cause, & subjective illusion superadded to the aggregate of facts and combinations certified by experience.

We have everywhere met, and shall again everywhere meet, with this pantheism, or monism, as it is now called, because it is the intermediate phase between anthropomorphism and science, the at times almost imperceptible line separating the two philosophies, those of logical reason and experience. Bruno is second to none of his predecessors or successors in the subtle art of intermingling matter and spirit while still keeping them distinct, in identifying the universe and God, God and the creature, the one and the manifold, without confusing them. From these contradictions he escapes with fine formulas concealing dialectic subtleties, and especially with fiery hymns to the infinite, to force, to the *natura naturans* or *naturata*, recalling at one time Lucretius, at another Marcus Aurelius. He is evidently sincere when he tells us that he had adopted the Copernican system before reading Copernicus, and when, with Lucretius, from the universal force and from the immensity in which it is diffused, he infers the infinity of the solar systems, of the stars and the constellations that whiten the milky way.

Giordano Bruno's originality consists not only in having, by reminiscence less than by instinct, reproduced and combined all the hypotheses of the old materialists and pantheists, but also in having sketched the theories, and employed the very terminology destined to play such an important and preponderating part in modern philosophy. Throughout his works are scattered, either in germ or *de facto*, the methodic doubt, the evidence, the infinity of the world and the vortices of Descartes; the God consubstantial with the universe, the immanent cause, the *natura naturans* or *naturata* of Spinoza; the monads, the atoms, the ascending and descending circulation, the pre-established harmony, the optimism of Leibnitz; the identity of Schelling, the *minimum* and *maximum* of Hegel; to say nothing of the efficient and final cause, will, the

inconscient, &c. Had the Inquisition allowed him time to sum up and reduce his doctrines to order, the history of philosophies would have been shortened by one-half.

Like Bruno, Campanella (1568-1639) was a Neapolitan, and a Dominican. Suspected by the Church for his adoption of the sensualism of Telesio, by the schoolmen for his harmless attacks on Aristotle, by the Spaniard for his patriotism, he was dragged before the tribunals of Naples, seven times tortured, and confined for seven-and-twenty years in a dungeon. Restored to liberty through the compassion of Pope Urban VIII., he succeeded in escaping to France. Welcomed and pensioned by Richelieu as an enemy of Spain, he was enabled here to end in peace his troubled existence.

His originality consists in the intimate alliance of metaphysics and pantheistic and astrological mysticisms with experimental philosophy. The first of these sciences is fundamental, comprising the principles of the other two. But we must pass over this feeble structure, composed of chimeras surmounted by a triune God—power, wisdom and love. Nor can we dwell upon his ingenious “City of the Sun,” although it is singular and interesting to find him here anticipating the conceptions of such modern Utopian thinkers as Saint-Simon, Fourier, and Cabet. Campanella has far higher titles to our recognition than all this. In the serious part of his system, treating of reality, and under the name of *micrology*, embracing the natural and moral sciences, he makes observation and induction the true foundation of philosophy. Simultaneously with Bacon, he proposes a very remarkable although somewhat undeveloped classification of human knowledge according to its object, and not, like his illustrious contemporary, according to the mental faculties that co-operate in its formation. Bacon’s scheme is more comprehensive and richer; but Campanella’s standpoint is more reasonable.

Vanini (Lucilio, Pompeio, and, as he chose to call himself in Holland, Julius Cæsar, 1586-1619), also a Neapolitan, and doubtless a monk, condemned to be burnt by the parliament of Toulouse, and legally assassinated in a foul and ferocious

manner, generally receives little recognition beyond the pity of prudish philosophers. The laxity of his theoretic and practical ethics may be indulgently overlooked, nor do we pretend to apologise for his vices, which in no way affect his doctrines, and depend solely upon his temperament. But we shall not be surprised to meet with philosophic incoherencies and shortcomings in a mind warped by a purely Catholic education, and by a long course of orthodoxy, and the expansion of which was prevented by fanaticism. Vanini was no more than thirty-three years of age when he expiated by a cruel death his atheism, or rather his materialistic scepticism. ●

In his "Amphitheatre of Eternal Providence" we have already had a foretaste of his hatred of scholasticism and the Platonic vagaries, "delirious ravings of old women." He speaks like an emancipated disciple of an Aristotle interpreted by Pomponazzi and Averroes, being kept by Catholic discipline alone within the limits of a purely formal orthodoxy. If he believes in the immortality of the soul, it is because the resurrection of the body is an article of faith. His conception of the Deity is pantheistic and illusory—"God is all, above all, outside of all, in all, by the side of all, before all, after all, and entirely all." Vanini did not lack a certain wit, and he may possibly have meant all this ironically. But in his "Dialogues on Nature" he lays aside the mask and all orthodox reservations. When spoken to of religion: "Children," he replies, "who are born with a feeble intellect, are only the more apt to become good Christians." Coming to the immortality of the soul, he says: "I have made a vow to my God not to discuss this question until I am old, rich, and a German." He cannot understand how spirit can move matter; he clearly perceives that the body, the organism, gives the impulse to the intellect, and he enunciates this proposition, which no metaphysics can shake: "Our virtues and our vices depend on the humours and germs entering into the composition of our being, on climate and atmospheric conditions." No doubt he forgets education and the moral atmosphere, and it was this very omission that occasioned the shortcomings of his ethical system and his licentious life.

We have at last crossed the vast ocean of shifting doctrines, above which hovered the phantasmagorias of the East, the hideous nightmare of barbarism and feudalism, the terrorism of Christianity, with its stifling wings and blood-dripping talons. Setting foot on the shores of the modern world, on the land of the living, we there met with the spirit of awakening inquiry, leaning with admiration, doubt, and hope on the waifs of antiquity, mingled with the commentaries and scoria accumulated by the work of ages. Henceforth we shall contemplate human thought, in possession of its inheritance, scattered, and again blown together by the storms, advancing now with a cautious step, now with too bold a flight, to the conquest of the earth, of the heavens, and of man. It is not yet enfranchised, is still impeded by the tattered remnants of its countless leading-strings, still oppressed by the burden of innumerable errors. The horizon is still murky with the smoke of the alchemist and the stake, darkened by the webs of logic and dialectics, by the miasmas of religious and metaphysical remains, by the persistent shadow of the old anthropomorphism. Hence so many aberrations, so many recoils and reactions. Nevertheless, all these ceaselessly gathering clouds must at length be pierced, rent asunder, dissipated, or illumined by modern discovery, by the telescope, the microscope, the anatomist's knife, by steam and electricity, no less than by the light of history, political and social revolutions, lastly by experience under all its diverse forms, with all its instruments of observation. The struggle will be severe, doubtful, incessant; but the goal is all important, it is enrolled on the banner of humanity, and can never again be forgotten.

FORWARD TO CERTAINTY THROUGH SCIENCE!

CHAPTER V.

MODERN TIMES.

§ 1. *Tabula Rasa, Reconstruction and Relapse—General survey of the Systems and Groups in the Seventeenth Century—Bacon and Descartes—The Sensualists and the Metaphysicians.*

THE study of modern philosophies has its disappointments. It opens full of hope, but it prepares many a surprise for us as we proceed, so that we begin to ask whether philosophy is not a sort of riding-school in which each successive generation resumes the already beaten track, stumbling over the same blocks, making the circuit of the same arena. The dress, the attractions, the language and accessories have changed, but the substance seems to remain. We accuse our predecessors of pedantry, of stupidity and fooleries, but we remain satisfied with the same hypotheses, if not with the same formulas, and we yield with the same confidence to the same aberrations and illusions. The spectator or observer expected a revolution, and finds nothing but a sequel.

Nevertheless, this revolution had been clearly predicted. Bacon had proclaimed the complete renovation, the *instauratio magna*; by his methodic doubt Descartes had made a clean sweep of all previous systems; both rejected far from them the schools and authority, claiming to start from themselves, and to build only on *firmly established*, well attested, and certain foundations. Both, but especially the second, were savants and experimentalists. Round about them were gathered distinguished intellects, great writers, and some men of real genius. The positive sciences were being developed by discoveries already harmonious enough to suggest to philosophy a general and sufficiently probable conception of the universe, of life and the human organism. The English physicist Gilbert (1540-1605), Kepler (1571-1630), Galileo (1564-1642), Torricelli (1608-1647), the physician Van Helmont (1577-1644), a great observer in spite of his "Archeus" and his

mysticism, Harvey (1578-1657), discoverer of the double circulation of the blood, were all contemporaries of Bacon and Descartes. Some ascertained diverse properties of bodies; others confirmed or developed the views of Copernicus on the position and action of the earth; others again penetrated into the living organism. Yet, notwithstanding all these helps, soon multiplied indefinitely, the superior principle of Bacon produced nothing but partial and badly followed-up applications, while the geometrical determinism of Descartes, which imparted such a strong and happy impulse to the sciences of number and dimensions, made shipwreck against the complexity and variety of the mental phenomena. Thus human thought, Descartes at its head, was once more plunged into the depths of metaphysics. There again reappeared the various systems of rationalism or spiritual dualism, idealism, pantheism, mysticism, scepticism, as we sometimes detect on badly manufactured paper the colour of the rags of which it is made, and all this frequently effaced, confused, lost in strange amalgams.

The reason is because the mind cannot readily break away from the mould in which it has been cast for countless ages. Inheritance has its moral recoils no less than its physical reminiscences; the dead keeps its hold on the living, transmitting from generation to generation a gesture, a trick, a cerebral fold. When, besides all this, education and the surroundings, the intellectual atmosphere, laws and customs come to keep alive and strengthen hereditary habits, these influences can be neutralised only by a combination at least equally powerful of opposite forces, an accumulation of unanswerable proofs. The intellectual history of the seventeenth century is a confirmation of the axiom that *natura nil facit per saltum*.

The Renaissance had collected enough of texts and contradictory opinions to unhinge the mind and drive to revolt, but not enough to emancipate it. A Bacon, or a Descartes, might indeed declare themselves free, and believe in their personal independence. But in a corner of their brain, still distorted by the old slavery, there still lurked, inheritance of ages, the germs of the disease they fancied they had escaped from, an in-born enemy secretly a

to the traditions that they repudiated. In vain they set aside Aristotle and the Greek philosophy as interpreted by the East, by Jews, Persians, Arabs, and Christians. In vain they brought the scholastic era to a close. This Aristotle and this scholasticism had slowly but deeply penetrated into the mind of their predecessors; their own youth had been imbued by the same spirit, their very reason had been formed under its influence. They thought for themselves, but with an intellect moulded by thousands of generations, in the midst of other minds fashioned by the same elements, predisposed to the same tendencies.

Amongst the errors from which they could all the less escape, inasmuch as inveterate habit had converted them into accepted truths, there was one involving all the others, and of itself alone sufficient to divert them from the right path. This was the radical dualism of body and soul, of spirit and matter. The reality of a distinct and special being, by means of particular faculties and of a power called reason, regulating the actions of an inferior substance accidentally united to the soul, implies by the same stroke, by anthropomorphic reaction, the reality of another soul, of another more comprehensive reason, whether blended with or superadded to a universe, swayed, regulated, and created by it. Of these twin-entities we have in a confused way witnessed the birth hundreds of centuries ago, amidst the rash conjectures of primeval ignorance, beguiled by dreams, by fear and hope. We have seen them assume definite shape in the symbolic worship of fire, become incarnate in a people of gods, overshadow the meditations of sages and the faith of multitudes. In the course of three thousand years it would be difficult to mention twenty thinkers who, walking in the footsteps of Anaxagoras, Democritus, and Epicurus, resolutely rejected them. They took complete possession of human thought, and what was the result? That the definition of the soul and of God, the relations of the soul with the body, or with God, of God with the universe, the reconciliation of the various systems with the inductions of experience, the incidental questions of good and evil, of free will and providence, of the origin of ideas, and a thousand others equally insoluble because without a standpoint on which to

place them, have diverted life from its end, philosophy from its goal, consigning the one to religion, the other to metaphysics, these also twin-sisters, often antagonistic, disastrous in unequal degrees, but fundamentally united in their origin and developed in parallel lines.

Add to all this that the Church came to convert into articles of faith the hypotheses of hereditary rationalism, moreover blending with them many strange fancies and tyrannical practices. The authority of Christianity becomes as firmly established amongst Protestants as amongst Catholics, growing so zealous and violent that no thinker of the seventeenth century will defy it with impunity, for public opinion will assuredly immolate them. Accordingly no one dreams of escaping from it, and not only does experience remain subordinate to reason, but reason itself to faith. Even those who inclined by instinct or reflection towards heterodoxy, did not venture to trespass beyond the pale of the Church. Covert atheism gets no further than pantheism and scepticism; the most suspected are fain to adhere to revealed truth, and make open declaration of their devotion to the doctrines whose avowed opponents are sent to the stake. Bacon contrives somehow to reconcile experience with faith; Hobbes, the most resolute of the sensualists, professes Christianity, while the atomist Gassendi lives and dies in the sentiments of the most sincere devotion. The one great anxiety of Descartes and his disciples is to avoid the ecclesiastical censures; yet to their honour be it said, that they incurred them more than once, and in order to form an historic estimate of their work, account must be taken of the field in which it was produced—between two irresistible scourges, rationalistic reasoning and a coercing faith.

The learned and philosophic world are all alike Christian. Kepler, an ultra-mystic; Galileo, a rationalistic Christian, and thoroughly orthodox. Forty years of accumulative experience in physics and astronomy have failed to open his eyes to the emptiness of the *a priori* principles. Twenty-three years of bickering even more despicable than ridiculous have been unable to shake either his religious belief or his respect for the Church.

that degraded him. Here is the retractation that this man of genius was compelled to pronounce on his knees before some cassocked imbeciles in the year 1633: "I, Galileo, in my seventieth year, on my knees before your eminences, with the holy gospels before my eyes and touching them with my hands, abjure, curse, and abhor the heretical error on the motion of the earth." Thus spoke, if not with conviction, at least with absolute submission, the man who has determined the position of the earth in the planetary system, and who has constituted the real universe in opposition to the factitious world of the philosophers and religions. The inquisitors were fully aware that every conquest of science was a blow to Christianity, though Galileo seemed unconscious of it. Like him, and following in his footsteps without breaking with philosophic and religious tradition, many experimentalists continued to bring within the domain of nature, motion, organisms, life, thought; in a word, everything that had been withdrawn from it by metaphysics. Very few of them clearly perceived the radical result of the work in which they were engaged. Nevertheless the partial laws formulated by them on experience ended by comprising the whole universe. Thanks to their unconscious efforts, the rôle reserved to the logical or mystic fancy has been steadily reduced until it has become little more than an empty name.

An attempt has been made to draw a distinction between those patient observers who confined themselves exclusively to facts and those who substituted mathematical laws for the hypotheses of antiquity codified by the Middle Ages, accepting and practising experiments, but only in order to subject the results to fresh *a priori* principles, and who thus prematurely reconstructed general systems. The distinction certainly exists, but not, as is pretended, to the advantage of the hasty generalisers. Of Descartes and his followers the human intellect has retained nothing but the actually observed and verified facts, or else the inductions based on experience. It is from Boyle, from Leuwenhoek or Swammerdam, not from Descartes, that science flows, as it is with Bacon, with Cassiodorus, and Hobbes, and not with Descartes, Spinoza, or Leibnitz that modern philosophy originates.

The metaphysicians are naturally far from inclined to be very indulgent with Bacon. The more modern of them, the eclectics, while accepting his method, are readily disposed to question its originality, its scope and influence. His praise is by them ever tempered by restrictions, often just enough, but which never affect his teaching and general conception.

Bacon assuredly invented neither experience nor induction, for these are the two elements of all knowledge, whether particular or general. But he clearly defined their merits, and he aimed at substituting them for abstract reasoning and deduction.

Bacon did no more than point out a method; he did not create a complete system, in which are only co-ordinated the various branches of philosophy: logic, psychology, ethics, metaphysics, and a theodicy. This is doubtless true, but he determined the object and end of philosophy, the knowledge of the actual, and the application of this knowledge to the benefit and advancement of mankind, and to the government of the world. "Knowledge," he said, "is power." And we shall, moreover, see that he sketched a complete outline of true philosophy.

Although he neglected the problem of the origin of ideas, he supplied the means for solving it. If he cannot be described as personally a sensualist, he is certainly the father in modern times of the sensualist school, since he bases all knowledge on experience. At the same time he did not renounce the old rationalistic dualism. Side by side with science he recognises theology, natural religion, final causes. In his first work, the "Essays," there has even been discovered a formal condemnation of atheism.

He remained without influence in the development of philosophy in France and Germany, but not in England, as witness his contemporary Hobbes, and his continuators, Newton in science, Locke and the Scotch school in psychology.

In fact, all subsequent discoveries might be grouped in some section or another of the "Instauratio Magna." Only one of the characters of the modern epoch is the rupture of that uniformity imposed by orthodoxy on European thought. The rational sciences, the development of the modern languages, and the steady rennais-

tion of Latin, by weakening the tyranny of reciprocal influences, restored the nations to self-consciousness, to their various capacities and temperaments. The Middle Ages are the monotonous history of Christianity; modern times are the history of the French, the English, the German, Italian, and Spanish peoples. Later on, the facility of intercourse, steam, electricity, international congresses, will again bring back unity, but a unity in which all the members will retain their intellectual and moral independence.

Lastly, from the practical point of view Bacon failed to derive any results from his method, and modern science is indebted to him for no discoveries. His individual researches on density, weight, sound, heat, light, magnetism, ended in errors, and he denied many of the truths which constitute Galileo's title to fame. But the same reproach might be made against Descartes; nor should it be forgotten that Bacon surmised the explanation of the tides, and the origin of colour, while suspecting the law of universal gravity and the relation of velocities to the distances. He is the forerunner and herald of Newton. His aim is not so much to discover as to stimulate discovery. He compares himself to the trumpet, which sounds the battle without engaging in the struggle, to the statue of Mercury, which without moving shows the way.

In ethics Bacon failed to practise what he taught. As Lord Chancellor of England he was condemned on his own confession for corruption (1621). Being concerned with doctrines alone, we might overlook the frailties of the individual. But the incident of which Bacon was a victim happens to be a fresh proof of the fluctuations of the moral code. Probably not one of his judges would have escaped the charge under which he fell. But their sentence, as a purely political measure, aimed through him at King James I., whose minister and favourite he was. He was judged in the name of a justice alien to his time and country. We would further point out how it happens that the rules of morality, themselves derived by a previous experience from social morals and interests, are often at variance with current usages, though on that account losing nothing of their legitimate authority. It is none the less true that the case of Bacon by no means involved either

dishonour or infamy. Among his contemporaries in every country, and especially in the political, judicial, and financial world, there were probably scarcely ten per cent. who would escape justice judged by our modern codes. Nor can the moral order even now be said to be viewed in the same manner by all classes in our more virtuous societies. We see it daily outraged without scruple and without dishonour by the commercial and financial classes, and especially by those champions of reactionary politics, who proclaim themselves its most determined mainstays. In the seventeenth century, in the England of the Stuarts, the Lord High Chancellor Bacon, though condemned of ministerial venality and a guilty complicity with his sovereign's vanities, remained none the less an upright, courteous, lavishly generous citizen, the profound moralist of the "Essays" (1597), the greatest jurist who had attempted to recast the laws and usages, and ensure for his country judicial unity.

But setting aside the statesman and magistrate, the jurist and historian (History of Henry VII.), the eloquent orator and brilliant writer, let us examine the vast and unbroken work, in which towards the end of his life (1620-1626) he laboured to resume not only all his labours, but also all the treasures of past and future science, classified according to a new method, with a view to the benefit of mankind.

The *Great Renovation* ("Instauratio Magna") comprises six main divisions: I. *An Introduction*, in which the progress of the sciences is opposed to the stagnation of scholastic and official philosophy. II. *The Method*, which substitutes the observation of facts for the hypotheses of reason, and induction for the syllogism. III. *A Scale of the Understanding*, of a twofold nature, by which induction leads up from particular phenomena to their general characteristics, and deduction leads down from laws or generalizations to facts gradually discovered, from cause to effect. IV. *The Prodromes or Anticipations of Philosophy*, to which must be referred all the provisional results of science. Lastly, V. *The Second or Active Philosophy*, the practical construction and application of experimental discovery to the individual, social and

lectual, and moral advancement of mankind. This is the goal already foreshadowed in the very title of the Baconian method: "Novum Organum, sive de Interpretatione Naturæ et Regno Hominis" (The New Organ, or concerning the Interpretation of Nature and the Empire of Man).

Of this vast structure Bacon laid the first two parts only. The thousand observations collected after his death, under the title of "Sylva Sylvarum, sive Historia Naturalis," merely supply the materials for the third part. In the *Prodromes* (v.) are grouped numerous treatises on the *Winds, Life and Death, Density and Rarefaction, Weight and Lightness, Sound, &c.*; lastly, the *Scale of the Understanding* and the *Second or Active Philosophy* (iv. and vi.) are nothing more than outlines left to be filled in by Bacon's successors. In the absence of the elements necessary to complete the scheme, he could no more have perfected it than could those who have prematurely attempted to do so.

But the *Introduction* and the *Method* are enough to enable us to appreciate the entire work and the genius that conceived it. The first, published originally in English, in 1605, under the title: "Proficiency and Advancement of Learning Divine and Human," received its definite form in 1623 under the title: "De Dignitate et Augmentis Scientiarum" (On the Dignity and Advancement of Learning). The second, the "Method," outlined in 1606 in the little work entitled: "Cogitata et Visa de Interpretatione Naturæ" (Thoughts and Views on the Interpretation of Nature), was not published till 1620, under the famous title of "Novum Organum, sive Indicia Vera de Interpretatione Naturæ et Regno Hominis."

In a word, Bacon was the first in modern times to define the object and end of philosophy, which are neither the idle deductions of principles laid down at haphazard, nor empty speculation on the imaginary relations between a fictitious universe and a conventional man, nor logic, nor metaphysics, but the study and classification of observed facts, and the application of scientific discoveries to the advantage and welfare of mankind, as it really is — that is nature and man. Bacon might doubtless be reproached by great mathematicians such as Huygens, for his ignorance of the

higher mathematics, while distinguished but unphilosophic savants, such as Claud Bernard and Liebig, or even less profound intellects, such as Victor Cousin, might question the impulse given by him to science and philosophy. But not only does Bacon know whence he starts and whither he tends, that is, from positive knowledge to the positive application of science; but he also knows by what road he will reach the goal proposed to philosophy. This road is experiment. Knowledge and power, he ingeniously and profoundly remarks, are synonymous, for ignorance of the cause destroys the effect. In the study of phenomena, what appears as the cause, becomes the law in practice. Nature can be subdued only by obeying, that is, by knowing it. Doubtless he is unable, as he dare not venture, to suppress theology and the god of final causes, which still sway English thought to the present day; but he passes them rudely by in their uselessness, as something apart from nature and science.

For his epoch Aristotle was a far more sagacious observer than Bacon. Induction he practised, and even defined, without realising all its importance, for he places the particular before the general, the individual before the universal. But once master of what he conceives as general and universal, the *categories* of human understanding, he forgets their subjective origin, their purely verbal value, taking them for the forms of a superior reason diffused throughout the universe regulated by it, and communicated to our mind by a sort of *a priori* intuition. He shrank from positively denying them a sort of substantial reality, which caused them to be confused with the types or ideas of Plato, and gave rise to the entities of Champeaux and Duns Scotus. These categories, in fact, became the key to the universe, the very essence of things; he inscribed them over the formulas of a learned logic, in which the unquestioned certainty of the principle involves the certainty of the conclusion. But if the principle fails, the conclusion fails with it; in which case how are we to restore or replace the principle? Here deduction is of no avail, since it can do no more than lead us back to the disputed principle, and show that from it the conclusion has been legitimately drawn by the mechanism of

the syllogism. In point of fact this line of reasoning is twofold ; the principle established at the head of the two branches is itself nothing but the conclusion of an ascending ratiocination, an induction whose foundation is accumulated experience. All *à priori* generalisations are merely the *résumé* of a series of *à posteriori* data too readily forgotten. The only actual *à priori* is the particular and concrete reality and the attestation of the phenomena revealing it, the phenomena by means of which it comes in contact with the sentient organism called man or animal.

Here Bacon steps in. Are we, he asks, to verify one by one the principles, the axioms, whether true or false, handed down as articles of faith from our predecessors? By no means; let us rather make a clean sweep and start afresh. Knowledge, branching off in all directions, will supply us with the materials for a new structure. It will recover for us those elements that have stood the test of ages, and such elements we shall restore to the place hitherto occupied by them, if needs be. Philosophy will thus cease to be an eternal piece of patchwork, and will become a methodic and new edifice. Hence it is that Bacon rightly describes as a *novum organum* the method of construction followed by Aristotle, but which Aristotle omitted to codify as he ought to have done before applying to it the descending scale of deductive logic. In consequence of this omission Aristotle's principles have remained unverified and incapable of verification, while his successors, fancying they were following in his footsteps, gradually acquired the pernicious habit of hanging their theories on pure abstractions. Hence the necessity of returning to particular and concrete facts, studying them under all their conditions and attendant circumstances, resuming their general characteristics, determining the constant relations henceforth to be called laws, proceeding to the law of these laws, and so on, never omitting incessantly to control this series of inductions by means of experiment. Bacon enumerates all the processes of observation, with many distinctions, and in a somewhat scholastic language laying down the rules of induction, establishing on each subject a court of inquiry by means of diverse commonplaces, tables of

presence and absence, of gradations, and the like, to which are to be referred the facts corresponding to, or escaping from, the presumed causes. But there is no occasion here to follow him in all these details, any more than in his classifications of errors, the *εἰδωλα*, or vain images of the mind.

The highly artificial and purely subjective division proposed by Bacon for all knowledge has been justly censured. He wrongly bases it on the difference of the faculties called into play, as if all the mental faculties did not tend towards knowledge. The sciences must be classified according to their several objects, not according to the faculties—memory, imagination, reason—of the subject pursuing them. On more than one occasion the great reformer was unfaithful to his own method. His genius, distracted by so many and diverse occupations, lacked the leisure to collect itself. He merely sketched a general design, but one sufficient for his glory. A fully justified and noble pride suggested the lines in his will where he bequeaths his memory to the nations and to posterity.

Between Bacon and Descartes there exists but one trait in common—the revolutionary instinct, the *tabula rasa*. Both are animated by the same determined will to rebuild the defective structure of science and philosophy. Both strive to forget the hypothetical and incoherent systems which still cling to their memory; they proclaim the downfall of authority, the absolute independence of individual thought. But here the resemblance ceases. One proceeds from experiment and induction; the other, above all, from reason, regarded as an irreducible and infallible faculty. One, in spite of countless fragmentary studies, fails to realise the plan he has conceived, leaving behind him nothing but a method of construction; the other, wielding an instrument of which he exaggerates the importance (mathematical geometry), raises an edifice more imposing than solid. One, without breaking with rationalistic dualism, at least supplies the means of setting it aside; the other, while accepting the collateral aid of experience, plunges headlong into metaphysics and the *a priori*, and his century follows in his wake. And yet with what confidence Descartes set out on his philosophic career! "We must seek," he says, "not what others

have thought, but what we ourselves can clearly and evidently see or deduce from a certain method." The "Discourse on Method," published in 1637 at Leyden, is a defiant manifesto, in which all previous work is declared null and void, in which universal and preliminary doubt overthrows authority, tradition, the substantial entities, and hidden causes. And the world hails this manifesto with applause. Seduced by the promises of the innovator, by the rare genius of the savant, by the good faith of the philosopher, it fails to detect the inadequacy of the instruments he offers for the purpose of demolition and reconstruction.

The method of Descartes, the *Rules* he formulates for the guidance of the understanding are clear, but they lack depth. If well applied, they no doubt enable us to get rid of ordinary errors, but not to reach the truth. So much may safely be asserted after the results obtained by the inventor, as well as after the superficial character of the first data and vicious definition of the criterion of certainty.

The Cartesian doubt is suddenly and finally arrested by the unassailable solidity of the mathematical principles, and by the fact of individual existence. On the one hand, nothing can make two and two other than four, and the three angles of a triangle other than equal to two right angles. On the other, the very doubt itself proves the existence of the doubter: "I think; therefore I am." But why do two and two make four? Why is it true that I exist? Because it is evident. Evidence thus becomes the criterion of certainty.

But what is evidence? The direct and immediate intuition of the undeniable; "the conception of an attentive mind, so clear and lucid that no doubt remains regarding what it grasps." An utterly illusory definition!

If, instead of defining evidence by itself, Descartes had recognized its experimental character, he would have sought and found the *raison d'être* of the mathematical axioms; behind the thought which for him suffices to prove the existence of man against scepticism, he would have penetrated to the living organism which conditions him. At the very outset he would have avoided that

strange divergence already remarkable amongst the old Eleatic school, leading him, on the one hand, towards abstract materialism, on the other towards a realistic spiritualism, both equally absolute and irreconcilable. Then one of two things must have happened. He would have either resolutely applied his mathematics to the elements of thought as well as to those of the universe, the course pursued by Spinoza; or else, recognising that where number and extension still lack exact measure, the use of the mathematical instrument must be suspended, he would have fallen back on experiment controlled by experiment, on that experimental method of which, without understanding its fundamental value, he nevertheless made such a constant and, at times, such an admirable use.

But it was not so. From the moment that he meets two "clear, lucid," and indisputable conceptions—mathematical truths, and the existence of thought—he remains satisfied with what he calls their evidence, thence departing in two contrary directions to explain the universe and the mind. Now it will be asked, how, in his general conception of nature, he approached as near to the truth as was compatible with the state of knowledge at the time, while in his conception of man rivalling the subtle puerilities of the schoolmen themselves? Because he is in the one case a mathematician, in the other a metaphysician; because in the immensity of the Cosmos the special and more intimate properties of bodies may be overlooked, their more general and outward properties—number, extension, motion—all proper objects of mathematics, here playing a preponderating part; because in the mental microcosm the illusions of anthropomorphism, stereotyped by language, dazzle the mathematician above all, and more than all others, defying his geometry if he refuses to be an observer and a naturalist.

The contrast we have pointed out between Bacon and Descartes appears even still more striking in Descartes himself. In him there are two minds—one the successor and heir of Epicurus, at least as much as is Gassendi; the other, a rival of Plato, nay, even of Bonaventura and Gerson; the indefatigable observer, physiologist, anatomist on the one hand, on the other the abstract reasoner, who

despises the sciences of observation, geology, metallurgy, botany, chemistry; the traveller, who visits Holland, Bavaria, Austria, Hungary, Italy, Poland, Pomerania, England, Denmark, Friesland, Sweden, either to escape from suspicion and persecutions, or merely through a restless spirit, lying concealed in these countries, accompanied everywhere by his thought, yet seeing nothing, neither men, manners, institutions, nor history, whose mind remains closed to all the diversity of human nature, "so detached from bodily things that he knew not even whether there had been any men before him;" lastly, the proud, dogmatic, and radical innovator, and again the slave of every theological prejudice, which he meant to shake off, but which he had imbibed with his mother's milk, and inhaled in the very atmosphere, amongst the Jesuits of La Flèche, in Europe, everywhere.

The bond of union of all these discordant elements is his exclusive devotion to mathematics. From the days of Pythagoras, to Kepler and Newton, there is revealed a remarkable affinity between mathematics and metaphysics. Both deal with abstractions, the one with legitimate, the other with false abstractions, neither troubling themselves with the realities, whence both have derived their certain axioms or their lying principles, before applying to them their theorems and syllogisms. Both believe—the one rightly, the other wrongly—in the certainty of logical deduction. At the same time, the resemblance is purely formal, existing only in the several processes, while the difference between them is fundamental. Metaphysics rely on unproved assertions; mathematics advance from proved data, here coinciding with experience. Their too-frequent mistake consists in proclaiming such data as indemonstrable, regarding them as direct intuitions, ignoring the long tentative efforts which prepared the way for their acceptance, converting them into so many entities or personified laws governing the universe.

When man found himself for the first time in the presence of outward nature, and after the first contact, inceptive experience, assured him of once of his own existence and of external reality, after an interval of doubt occasioned by the shock, whether

painful or pleasant, he began to distinguish objects according to their relations between each other or with himself. He took account of the distance separating them, and conceived all at once the ideas of number, extent, figure, and motion. Relatively to his organism, these were, in fact, the simplest and most constant characteristics of all that encompassed him. The understanding, ~~waxing~~ stronger with experience and usage, became accustomed to classify the general quantities and qualities, rising from unity to twos, threes, and tens, giving names to each group of unities so acquired by addition, while also realising the various angular, flexional, and circular forms, surfaces, lines, and angles. Then passing from the objects, which could no longer escape from these relations, abstraction was applied to words, and the signs invented to correspond to them. Henceforth there was ready to hand an instrument applicable to everything, to all objects, and, at the same time, infallible, because the outcome of an observation capable of indefinite verification. Such is the origin of arithmetic, of geometry, and mechanics. Before becoming rational truths, as they are called, the axioms of quantity and of measure were experimental truths, gradually fixed by verbal or written signs, which became invariable. They would have neither value nor use; they would never have been formulated if, relatively to the senses of men, there existed no objects capable of being numbered and measured, and which, by abstraction, have been systematically stripped of their more special and complex characters. For one and one are two, two and two are four, only on the condition of for a moment supposing all unities equal one to the other, without differences of bulk, weight, colour, &c. The equation, $1 \text{ rat} + 1 \text{ elephant} = 2$, is true, provided we omit the terms *rat* and *elephant*; for if we compare the two concrete unities in respect of their bulk or size, the first remaining one, the other becomes many thousands. The arithmetical axiom, while absolute by abstraction and conventionality, becomes merely relative in the concrete with its varying size, weight, motion; so also with the geometrical axiom in presence of the qualities removed by geometrical abstraction.

Now if we overlook altogether the reality of the substance, or

better, of the substantial elements, whether irreducible or not, and of which chemistry has drawn up a list, it becomes possible and useful to reduce to number, to volume—much more to number alone expressed by ciphers and letters—all the properties, all the combinations, all the states and relations of bodies. This marvellous simplification, prepared by the inventors of Algebra, and the true advocate of which was Descartes, has been prosecuted for the last two centuries according as physics and chemistry bring to perfection their formulas and their experiences. It is already being extended to biology, and it will some day embrace the sum of all the facts attested by history and ethics—two domains vainly claimed by psychology and metaphysics.

Descartes did not foresee this last phase of science. At least, if he ever attempted by the mathematical method to solve the problems of animal life he shrank from dealing with thought, one of the manifestations of human life. Let us admit that the attempt would in any case have failed. As it was he often blundered, not only in the *a priori* invention of animate nature, but even in the explanation of the system of the universe. This was because experience and induction had not yet furnished mathematics with the principles necessary for their deductions.

In any case, life in its more complex and variable phases continued still for a long time to escape from the mathematical treatment. When at last abstract science shall have subjected nervous and cerebral action to the laws of measure and number, if it does not retain a very clear perception of its purely instrumental function, there will be reason to fear and to reject the pretensions of a new metaphysical system. It will be necessary constantly to remind the successors of Spinoza, Leibnitz, Kant, and Hegel that bulk and number, substance and form, motion and force, life, affinity, action, thought, are nothing but words and signs apart from bodies capable of number, extension, figure, motion, life, sense, and thought. Against the vagaries of mathematics, and those still more to be dreaded, of logic, there is but one fundamental and sovereign remedy—experience, which suggests the mathematical method, and which is the sole test of knowledge.

Against it nothing can avail in the sciences either of nature or of thought.

We have sufficiently pointed out the shortcomings of the Cartesian method, and it is now evident why Descartes almost reached the truth in his conception of the universe, while his conception of man was, and could not fail to be, an utter hallucination. It remains to summarise his twofold doctrine.

The "Cartesian World," the title of a posthumous work published by his disciples, is ruled by an absolute unfailing determinism. The bodies occupying it, the phenomena therein taking place, result from the combination of particles endowed with bulk and motion, so that there are neither first nor final causes: "All the modifications that exist in matter depend on the motion of its parts." Heat and light are motions. All human science consists in clearly perceiving "how simple natures (elements) concur together to produce other things . . . in determining their relations, analogous to those that bind together the terms of an equation or the lines of a figure . . . All my physics are nothing but geometry; all my physics are nothing but mechanics." There are no atoms, for all extent is divisible (Descartes speaks here as a logician, not as a chemist); but there are diverse combinations in figures, in motion, and duration of certain infinitely small particles. "Every body may be divided into infinitely small parts. I do not wish to determine whether their number is infinite or not; but at least it is certain that as regards our knowledge it is indefinite, and that we may assume the existence of several millions in the smallest grain of sand the eye can perceive." There is no vacuum; but there exists a subtle matter, the ether, diffused everywhere in the interstices of the tissues and round about all bodies.

Matter is homogeneous, and its products differ only in the form and order of their parts. What we call elements—air, fire, water, earth—are in the end nothing but various groupings of molecules, more or less penetrating, round, or gross, capable all of being fused one in the other; all the more is this the case with the metals and with what will later on be called simple bodies. "All bodies are

made with the same matter There is nothing to cause differences in them, except that the little particles of this matter composing some have different forms or are differently disposed from those composing others." So thought the alchemist, so also, or nearly so, Epicurus. Lucretius also assumes a certain number of atomic types, strictly speaking, corresponding to the simple bodies of modern chemistry.

Like Bacon, Descartes rejects the Copernican system. In "liquid heavens, composed of small parts moving separately from each other," he places the astres, the planets in the centre of vortices of ether, which uphold all their parts. In fact, "when a body moves, although its motion lies most frequently in a curve, and although incapable of any motion that is not in some degree circular, still each of its particular parts tends ever to continue its own motion in a straight line." Hence the importance of the vortices of subtle matter, themselves contained within other vortices, or in the motionless isles of the intermediate worlds.

Descartes admits with Lucretius that the causes imagined by him may not be the true ones; but he considers he has done enough if the causes proposed by him "are such that all the effects which they may produce are found to resemble those we see in the world, without asking whether they are really produced by them or by other causes."

Without dwelling on his many brilliant discoveries in physics and dioptrics, and on his admirable reduction of geometry to algebra, such briefly is the absolute materialism of Descartes. In its main features his conception of the universe, based on expansion and motion, does not differ from the materialism of the ancients.

His physiology has the same essential character as his physics, both reducing life to a piece of mechanism. To his "animal machines" and *esprits animaux* we are indebted for the delightful verses of La Fontaine, besides many other ingenious criticisms. Descartes himself, by separating thought from life, ridiculed his apparent paradox. But apart from these *esprits animaux*, greatly out of place with an opponent of hidden causes, though in other respects adequate for the circulation of the blood in the brain and

the transmission of the nervous shocks, and apart also from the hypotheses too often mixed up with the observation of facts, it must be confessed that Descartes had just and profound views. He subordinated the so-called organic phenomena to inorganic determinism, itself a capital discovery! The "animaux-machines" are, all things considered, the most powerful and lasting creation of his genius.

There are passages in the "Formation of the Fœtus, or Treatise on Man," which seem to outline the whole of modern physiology :

"All the functions that I have attributed to this machine (the body), such as digestion, pulsation of heart and arteries, nourishment, growth of the members, respiration, waking and sleep, reception of light, of sounds, smells, tastes, heat, and such other qualities in the organs of the senses; the impression of their ideas on the organ of common sense and of imagination (the brain); the retention or stamp of these ideas on the memory; the inward motions of the appetites and passions; lastly, the outward motions of all the limbs, which flow as much from the actions of the objects presented to the senses as from the passions and impressions occurring in the memory, and all so aptly that *they imitate, as perfectly as possible, the motions of a real man*; I wish, I say, that you should consider that these functions proceed quite naturally in this machine from the disposition of its organs alone, no more nor less than do the motions of a clock or other automaton from the disposition of its weights and wheels; so that we are not on their account to imagine in it any other vegetative or sensitive soul, nor any other principle of motion and life than its blood and its spirits agitated by the heat of the fire which burns continually in its heart."

In his physics Descartes merely repeats Epicurus unconsciously; but here he surpasses him, unintentionally putting an end to that invention of the soul, whether material or immaterial, which has disturbed so many brains and which warped even his own genius.

Are the theories of Descartes on the living organism to be referred to the mathematical method or to experience? The one merely classified the results of the other. For the spirit Descartes

was a first-rate anatomist. In 1630 he is already "studying in chemistry and in anatomy all together," learning every day "something that he does not find in books." The dissection of animals, he writes to Mersenne, "is an exercise in which I have been often engaged for the last eleven years, and I think there is scarcely a physician who has so closely attended to it as I have done." Wherever he goes he sends to the butcher for such "parts as he wishes to dissect more at his leisure;" and when asked by someone to see his books, he takes him to a passage, and showing him the body of a calf, "There," he says, "is my library; these are the studies to which I devote myself."

He also wrote thus: "If we could well know what are all the parts of the seed of any species of particular animal, as, for instance, man, from that alone might be deduced by purely mathematical and certain reasons, the whole figure and conformation of each of its members. . . ." Kant had, later on, similar glimpses on the elaboration of the brain.

Lastly, here is a passage from a letter to Mersenne: "I am now dissecting the heads of various animals to explain wherein consists the imagination, memory. . . ." Here, then, is true philosophy at last. Of what use can metaphysics be henceforth?

Descartes recognises nothing in the human body, whether it be sensation, the passions, the memory, the correspondence of the motions to the nervous impressions, that he does not also find in the animal series. But he refuses to see that he endows animals with thought, reason, will, all that is summed up in the word *soul*. For man he requires a privilege by means of which to escape from the mechanical state. And by the side of extension, which alone obeys the natural laws, he admits beings without extension, whose substance is naught—souls and a God.

"A thing of this nature cannot be imagined, that is to say, cannot be represented by a bodily image. But we must not be surprised at this, for our imagination is adapted only to conceive such things as fall under the senses. And since our soul has neither colour, smell, taste, nor anything of all that pertains to the body, it is impossible for us to conceive or form any image of it.

But the soul is none the less conceivable; nay, more, as it is by its means that we conceive all things, it is also of itself alone more capable of being conceived than all other things together." Here we have the *nil in intellectu quod non prius in sensu, nisi ipse intellectus*, so vaunted by the critics, and to which we shall again return. It is on this specious reasoning that Descartes established the famous psychological method, which, shutting up the mind within itself, requires the soul to study it apart from everything constituting it, that is, apart from sensations and the outward world. Hence the necessity of innate ideas, on which see Locke, farther on, and of necessary truths directly received by the understanding.

This thinker, who so clearly perceived in the animal organism the passage from sensation to the passions, to the imagination, and memory, that is, to the elements of reason, sets himself to invent "a thing which cannot be imagined," to which he denies sensation, passion, imagination, even memory, all attributes of the body, and which works only on the materials supplied by the body. He fails to perceive that his "innate" and "necessary" ideas are nothing but summaries of those very materials. Here his mathematics play him false.

Nay, more; this world, the system and laws of which he has discovered, and the contact with which reveals to us at once our own and its existence, becomes an inward conception of the soul. And who knows whether the image answers to the reality? For it is to be noted that the soul can receive no images, since imagination belongs to the body—together, a hopeless maze of contradictions. The question itself, though idle enough, recurs incessantly, and we shall have again and again to set it aside.

And what becomes of the criterion of certainty, the famous *evidence*? This clear and precise intuition and conception of an attentive mind, as he defines it, no longer suffices to remove doubt. What course are we to pursue? what faith will rescue science from shipwreck? We say *faith*, because it is no longer a question of *knowing*, but of *believing*. And the reason of our belief is the most improbable, the most ridiculous, and childish it is possible to

invent—the *divine veracity*! God could not have meant to deceive us, God to whom Descartes awards an unlimited liberty. But, lastly, what proves the existence of this God himself? The idea that we form of him—Anselm's ontological argument based on the notion of the absolutely perfect, the infinite, &c. Thus a conception of this soul, which does not presume to satisfy us as to the existence of the outward world, assures us of the reality of a being without extension, although limitless; who assures us of the reality of all things, who can will all things, and yet cannot will to deceive us. To this the philosopher has brought himself who exclaimed: Give me matter and motion and I will re-fashion the universe!

So much metaphysics have detained us in our course; but so much still await us that we cannot dwell further on these vagaries. It is no doubt good taste to regard them as sublime. They evidently suited the state of mind produced by Christianity and the schools; for they fastinated at least quite as much as did his admirable theories of life and the universe, his most illustrious contemporaries—Mersenne, Bossuet, Fénelon, Arnauld, Nicole, Gallicans, Jansenists—mystics all alike. Such distinguished adherents, far more than a doctrine harmless enough from the Christian point of view, raised the bile of the Sorbonne and the Jesuits. The works of Descartes were placed on the index; his philosophy was proscribed by the Council of the King; the Oratorian Lamy endured a useless persecution for having defended it. Nevertheless, it triumphed, and his metaphysics, artificially superadded to his materialism, served as the vehicle of the vigorous conceptions we have higher up recapitulated. But this vehicle broke down under the attacks of Locke. Science continued its onward course; it had already stimulated Newton and Huggens, and had created in medicine the fruitful contest of *iatro-mechanism* and *organicism* against Stahl's animism. The immense collapse of Descartes in metaphysics, and of his metaphysics in the world, would seem all the better to enable us to measure the height and majesty of the monument raised by this extraordinary genius to mathematical science.

The short life of René Descartes was entirely devoted to work and reflection. Born in 1596, at La Haye in Touraine, educated by the Jesuits of La Flèche, he read everything that had been written on the universe and on man. After hesitating between various careers, carrying his doubt everywhere with him, resolved to study at once all the sciences and to found a general philosophy in accordance with his mathematical ideal, we find him wandering from place to place, already famous before having published anything. Suspected in France, he settled for twenty-five years in Holland, where he corresponded with the world through his friend Mersenne, and where he issued his "Discourse on Method," 1637; his "Dioptrics," "Meteors," "Geometry," "Meditations," in Latin, 1644; in French, 1647; "Principles of Philosophy," 1644, 1647; and "Passions of the Soul," 1649. At the earnest solicitation of Queen Christina he withdrew to Sweden, and died at Stockholm in 1650, in his fifty-third year. After his death there appeared, edited by his immediate disciples, Rohaut and Clerselier, the "Cartesian World, or the Treatise on Light," the "Treatise on Man and on the Formation of the Fœtus," and the "Correspondence," 1657-1667. Not till the year 1667 did his friends succeed in procuring the return of his mortal remains, and the erection of a monument to his memory in the church of Sainte Geneviève du Mont, Paris. Translators of his works were Rohaut and especially Sylvan Régis, 1632-1707, a zealous apostle, who preached his doctrines in the name of the Cartesian Society of Paris in Toulouse and Montpellier, and defended it against Huetius and Spinoza. To Régis we are indebted for a "General System according to the Principles of Descartes," 1690. The differences that occur between the metaphysics of the master and his disciple do not call for special mention.

Amongst the opponents of Descartes, the most courteous, as well as the most earnest, was Peter Gassendi, who was also an encyclopedic mind, though more learned than inventive, a strong and sympathetic character, and altogether a man of the times in his sincere advocacy of contradictory doctrines. Although nominalist, essentially a materialist, and recommendor of the Sen-

curean philosophy, Gassendi contrived to remain all his life a conscientious and pious priest and obedient son of the Church. The character of his strictly experimental system is little modified by the concessions he was compelled to make to the current ideas—the soul and rational god admitted by him side by side with the igneous soul and the divine universe. It embraces precisely the same secondary errors and the same fundamental truths as the epicurean doctrine, assigning happiness as the end of existence, and founding ethics on the interest of the individual in society. If principles be judged by their application, those of Gassendi were not so very defective, for he was personally a model of courtesy, generosity, and unostentatious virtue. Without dwelling on his doctrines, which are sufficiently well known, we shall limit ourselves to mentioning the leading events of his life, the scientific and philosophic contests in which he became entangled, and the titles of his numerous works.

Born near Digne in 1592, already director of a college in 1612, doctor of divinity in 1616, ordained priest the following year, Gassendi renounced the scholastic philosophy while actually professing it. For six years he filled the chair of philosophy in the University of Aix, and soon perceived that the discoveries of Copernicus, of Kepler, and Galileo, were destroying the false physics imposed on the schools in the name of Aristotle. Hence, against the Stagirite was directed his first work: "*Exercitationes paradoxice adversus Aristotelem*," Grenoble, 1624. The frequently unfair censures suggested by his provincial enthusiasm against the inventor of the syllogism affected the teaching of his disciples more than the genius of the master. This treatise appeared four years after the "*Novum Organum*," thirteen after the "*Discourse on Method*," and is, no less than those famous works, a resolute defence of liberty, a declaration of independence. It produced a great effect, and earned for its author the esteem or friendship of many thinkers. During a residence in Paris, Gassendi became associated with Le Moine, Le Vayer, Marescail, and Descartes.

some years previous motives perceived him from

developing his ideas. The peripatetic system, driven to bay, had just obtained, in 1624, a decree of the Parliament forbidding, "under penalty of death, the holding or teaching of any maxim against the ancient and approved writers." Gassendi visited Flanders, Holland, and England, here making the acquaintance of Hobbes in 1628. It was on this occasion also that he became familiar with the doctrines of Bacon, so conformable to his own. While occupying himself with astronomy (he was the first to observe the transit of Mercury over the disc of the sun in 1631), he found time to oblige Mersenne by refuting the theurgic mysticism of the English writer, Robert Fludd. Meantime he corresponded with Galileo, wrote on physics and astronomy, and openly sided with Copernicus against Tycho. His love of the experimental method everywhere preserved him from the systematic errors of Descartes; every day widened the inevitable breach between rationalism and the school of observation, and the rupture came at last in the controversy occasioned by Descartes' "Meditations." Mersenne having communicated this work to Gassendi, as the recognised leader of the opposite school, the latter composed his "Objections" (*Disquisitio*) and his "Doubts." We may well conceive the embarrassment of the metaphysician, the *anima*, as his courteous and brilliant critic called him, under his sharp attacks. But it is to be regretted that Gassendi always wrote in Latin, for the French language would have given full effect to the merits of his style and the cogency of his reasoning.

As he grew in years his admiration increased for the ancient materialism, the true precursor of modern science. His last years were marked by important labours on the "Life, Morals, and Doctrine of Epicurus" (1647-1649), followed by the "*Syntagma Philosophiæ Epicuri*," a systematic summary, accompanied by a refutation of the Epicurean dogmas opposed to the Christian teachings. Of the two doctrines thus brought into juxtaposition the second gains nothing by the contrast.

After issuing in 1653 the biographies of Copernicus and Tycho-Brahe, Gassendi was compelled to abandon his studies. He died in 1655 in his sixty-third year, leaving to his friends, Montmort

and the great traveller Bernier, the care of collecting all his writings, which were published by Montmort in six folio volumes in 1658. Bernier popularised his philosophy in an elegant summary forming eight 12mo volumes, issued at Lyons in 1678.

Locke has made us too forgetful of Gassendi, who was really more liberal-minded and even more daring, notwithstanding his formal submission to the authority of the Church. His influence, however, was still far greater than the metaphysical school is willing to confess. It should not be forgotten that he moulded the mind of Molière, and that his memory remains associated with the brilliant imitation of Lucretius, a fragment of which is embalmed in "The Misanthrope." "To have been the friend of Galileo," writes M. Duval-Jouve, "and the defender of his doctrine, the rival of Descartes, the first disciple of Bacon, the first historian of philosophy in France, and the precursor of Locke, that is, the true father of the modern sensualist school, are also sufficiently honourable titles to fame."

The latter at least of these titles Gassendi to some extent shares with Hobbes, another illustrious adversary of the Cartesian metaphysics ("Objections against the Meditations"); only the materialism of Hobbes, while more complete and severe, is also less conclusive. He is allied to the scepticism of Democritus and Protagoras, and especially to that of Hume and the modern English psychologists. In its ultimate analysis the outward world is nothing for Hobbes except a succession of motions reacting on us, and diversely translated by sensation into images, of which nothing guarantees the reality. This is with him a firm and conclusive opinion, though it interferes little with his dogmatic serenity; and as this idle scepticism so dear to our modern *bombynantes in vacuo*, holds moreover but a small place in his system, we need not trouble ourselves with it more than he did himself. Besides, the leading arguments in favour of systematic scepticism are to be found not in his writings but in those of his contemporary and opponent Joseph Glanvill (1630-1680). Moreover, the experimental philosophy, for which all these sceptics laboured unwittingly, could not but profit by the skillful attacks aimed by Glanvill against the principle

of causality. Here is how the English divine argues after Charron and before Hume, and so many others. "All knowledge, of course, is deductive, for we have no knowledge of any causes by simple intuition; we know them only in their effects. Thus we can conclude that one thing is the cause of another only because the latter constantly accompanies the former, for causality itself is not perceptible. But to deduce a causality from a simple concomitance is no certain conclusion; on the contrary, in such a method of procedure there is an evident deception."

Hobbes was born in 1588 at Malmesbury. A brilliant Oxford student and classical scholar, he helped Bacon in the Latin composition of the "Instauratio" and the "Organum." Frequent journeys, especially to France, brought him into direct or epistolary association with Galileo, Mersenne, Gassendi, and Descartes. After passing through endless vicissitudes he survived to his ninety-first year, dying in 1679. He had successively published, mostly in Latin: "The Citizen" (*De Cive*), 1642; "On Human Nature," in English, 1650; "The Leviathan," 1651; "Logic," 1655; "A Dissertation on Man," 1658. All these works were re-arranged in the complete edition of his works (1668), divided into "Logic," "First Philosophy," "Physics," "Politics," and "Mathematics."

A disciple of Bacon, Hobbes starts from experience and induction. But these he assumes, considering their conclusions as already determined, and summing them up in the proposition: "Nothing exists except bodies and their accidents. God and his attributes are found at once excluded from philosophy, together with spirits and souls, vain images left to dreams and theology. Having no occasion to argue about his principle, he makes it his standpoint, deducing from it an original logic, a psychology, a moral and a political system. The logical temperament and mathematical bent of his mind have been justly remarked upon; but his method has been too much opposed to that of Bacon. The fact is one flows from the other. The inductive organum is rejected; the ascending line of the twofold ladder is freely accepted, and Hobbes mounts it in the steps of his method. He now reaches

merely to descend the second line in order to create that deductive organum which Bacon lacked the time to establish.

Philosophy dwells within us, all its elements being supplied by sensation, memory, experience, and it remains for us to set them in order by reflection. Hence to philosophise is to reason. Ratiocination, like the calculus, operates on signs, and terms representing ideas, images, or the residuums of sensation. To reason is merely to compose and decompose propositions, after having defined all their terms. Without definition there can be no satisfactory demonstration. Hobbes attributes very great importance to the syllogism, without perhaps sufficiently bearing in mind that the conclusion, being always contained in the major premiss, can in no way prove the truth of that premiss. When we say: All men are mortal; but Peter is a man; therefore Peter is mortal, we reason correctly, but we have by no means established the fact that all men are mortal. Hence logic can do nothing of itself, unless it be based on experience and induction. But in any case the logical calculus of Hobbes, with its additions, its subtractions, and divisions, is ingenious and useful for the classification of ideas.

The first philosophy, which takes the place of metaphysics, consists in the elimination of the entities, their reduction to their sensitive and subjective elements. Space is nothing but the image of objects regarded solely as existing and endowed with extension, apart from all other properties. Time is nothing but the image of successive motions, of events considered as fact, apart from all other characters. Both are subjective and relative conceptions; one space added to another, one portion of time added to another, and so on, constitute what we call absolutely, by way of abbreviation, space and time, finite when the parts may be counted, infinite when we fail to count them. The infinite is nothing in itself but an abbreviated name of the indefinite, which may always be assumed as greater than any given sum of finite objects. It is in this sense that the infinite is said to contain the finite; but it is the finite that really leads up to the infinite, which is nothing but an indefinite succession of finite things dealt with by abstraction. Neither space nor time, he says, neither any one thing

and particular aggregates, more or less complex, divisible into more or less simple elements.

From the first philosophy, thus disengaged from metaphysics and completely submitted to logic and mathematics operating on the results of observation, Hobbes passes to what he calls civil philosophy, the science of man considered in his nature and destination.

The nature of man is the sum of his natural faculties, such as nutrition, motion, generation, sensibility, reason, &c.

Man being given, with his living and sentient organism, if we consider the so-called intellectual faculties only of this organism, we see that they all proceed from contact with things, from sensation, the reaction of a motion bringing into play the internal activity. Or else sensation, transmitted to the brain, weakened and condensed in imagination and memory, elaborated, co-ordinated in the reasoning faculty, produces ideas and conceptions; and in this case it is the origin of intelligence or understanding, which through experience derives science or wisdom. Or again, sensation, accompanied by pleasure or pain, sent from the brain to the heart (to use the language of Hobbes), gives rise to sensibility properly so called, involving the affections, the passions, with all their accompanying moral and social ideas. We shall have ample occasion to develop this broad and simple classification, and shall limit ourselves here to the category of the affections.

Pain, attended by hate or aversion, joy followed by love or desire, such are the opposing causes incessantly involved in various degrees of strife and compromise, of the affections and passions, the motives of all human actions. Good and evil, identical with pleasure and pain, relative as regards different temperaments, vary in the measure of the opinion entertained of them by individuals and groups of individuals. The moral laws are based on mutual agreement in our estimates relative to good and evil. Hence their variations, and hence also their general stability. For with man, individual differences are far outweighed by the common qualities, whether physical or intellectual, which we summarise in the term genus, or species. The most universally recognised good and evil

are preservation and death. Everything favouring the one is good, everything hastening the other, or resembling it, is bad. These two primitive sentiments are found at the base of the most learned and most commendable moral theories.

When towards one and the same object we experience desire and aversion in turn, this alternative, while it lasts, is called deliberation. When, after the deliberation, one of the two movements prevails, it takes the name of will; and when on the will there follows the power of action, it is called liberty; so that liberty is not independence, but simply the absence of obstacle to the will. Hence desire, aversion, deliberation, will, liberty, are neither forces nor entities of any sort; they are terms by which we distinguish the incidents of the sensitive evolution. Conscience is the fact itself of sensation, and the *ego* is the result of an organic whole.

Man, led by interest and experience, has passed from the savage to the social state. Families and scattered hordes, coalescing by accident or by convention, have developed into tribes, societies, nations. Driven at first to war by the instinct of preservation and aggrandisement, communities placed their ideal happiness ever more and more in internal and external peace.

The maintenance of society and of peace, being the common interest, becomes the aim and object of political science, and is guaranteed only by an absolute power, sacred, inalienable and inviolate, entrusted to the hands of one individual.

The absolutist conclusion of Hobbes comes as an overpowering relief to the liberal school of metaphysics. They hasten to proclaim the logical cogency of Hobbes, exclaiming that this materialist has drawn from his degrading doctrine all the consequences involved in the negation of the soul void of parts, of free will and immutable justice. They forget the "Statecraft derived from Holy Writ," and the pure royalism of many spiritualists or deists. Minds less prejudiced would have remembered that Hobbes, attached to the fortune of the Stuarts, of true liberty saw nothing but its anarchical and violent phases. They would have understood that a lover of order and peace, a thinker superior to the silly wranglings of Puritan and Independent, would necessarily prefer the wisdom

of one to the follies of all. They might have possibly even perceived that all organisations upholding society and peace answer equally well to the wishes of the philosopher. Absolutism is not the consequence of his teaching; but even if Hobbes thought so, what matters his error to us?

For the second time lighting on English soil we have gathered fresh strength against the metaphysical Proteus. Before dealing with it under its pantheistic and dynamic guises, a few words might be devoted to the amiable La Mothe-le-Vayer, the copious Huet, the clear-headed La Rochefoucauld (1613-1680), the sickly Pascal, or the unbelieving Bayle, sceptics of diverse temperaments, each in his own way continuing the traditions of Montaigne and Charron. But these are names belonging more to the history of letters than of philosophy. Besides, the arguments of scepticism admit of no variations, and have been fixed once for all by Protagoras, Arcesilaus, Pyrrho, and Ænesidemus.

La Mothe-le-Vayer (1588-1672) belongs to the dainty order of doubters, though his irony is not on that account the less profound. For does he not place his "Christian Sceptic" under the shelter of orthodoxy? He contrives to remain tutor of Louis XIV., and to avoid awakening any suspicions, while all the time touching on the "burning questions" of the times (for atheists were still liable enough to be burnt in France about the year 1655), and amusing his contemporaries at the expense of the pedants and dogmatists, *opinionisissimi homines*. His "Five Dialogues of Tubéro" (1671), which he composed "in the character of an ancient and pagan philosopher, *in puris naturalibus*," are a model of elegant raillery, based on a serious foundation. Side by side with the praise of the "rare and eminent qualities of the ages of his times," here occur extremely vigorous considerations on the diversities of opinions and morals; on the advantages of solitude; lastly, on the origins of religions. As a matter of course, the God of the Inquisition is specially exempt from all indiscreet scrutiny. Like the "venerable master," Sextus Empiricus, whose "diſcursus apertus" should be read "with care and attention," the pleasant Tubéro seeks, above all, "to expose and prove of mind in indifference." A scepticism which is

pure sensualist, like La Rochefoucauld, Saint Evrémond, Huet, and Bayle.

Pascal (1623-1662) will always be read with delight by the educated. A more nervous style, more incisive expressions, were never before placed at the service of more vacillating thoughts. A precocious mathematician and eminent geometrician, he was pursuing, with some distinction, the philosophic career as traced by Descartes, when the Jansenist fatalism, combined with a sort of intermittent insanity, began, from the year 1654, to disturb his mind and mislead his morbid genius. A recent editor of the "Thoughts" (Lemerre, vol. i.) endeavours to show that most of his invectives against reason and experience are nothing but objections collected from Montaigne and the manuals of theology (*Pugio fidei*) to enliven his "Apology of Christianity." In point of fact, the learned critic is no doubt right enough, and, in the incoherence of these fragments, thrown off, without plan or method, on scattered slips of paper, producing the effect of so many spasmodic convulsions, all due allowance must be made for the confusion of a hurried compilation. But the general opinion still holds good. If Pascal undertook to defend the faith, it was because he doubted. Against whom does he defend it? Against himself, against his own tendencies, which were even more sensualist than metaphysical. He struggles to his last gasp. Overthrown by the question of grace, he strives to involve all philosophy and science in his defeat. Under the originality of form we easily detect the substance common to all sceptics alike; wretched condition of mankind, weakness of the reason, uncertainty of experience, futility of all criteria. What escape from despair? Blind submission to fatality, further aggravated by the capriciousness of grace, submission to true Christianity, vainly mitigated by polite and skilful pleaders, to faith which infatuates.

De Huet (1630-1721), the learned Bishop of Avranches, is fully as important as and as serious as Pascal is combative, headstrong, excited, gloomy, and a more or less hallucinated man. But his pen is dull and heavy, and he shines and surpasses La Motte Le Vayer. Not that his "Catholicism of the Christian Philosophy" and his

treatise "On the Weakness of Human Understanding" are altogether devoid of doctrinal value. From his wearisome Latin some patient student might draw a few solid arguments, though even these are far from original. Descartes might perhaps have attracted him at first; but he soon perceived that religion has nothing to gain from mathematical materialism or from rational deism. An orthodox sceptic, his great object is to establish the necessity of faith. This is the incidental thesis of La Mothe and of Charron himself, and Pascal comes to no other conclusion. But Huet is thoroughly convinced, which renders him all the more insipid.

Bayle (1647-1706) avoids both reproaches. He is incredulity incarnate; with his vast learning he grinds the systems one against the other, while with his flowing and lively style he amuses himself amidst their ruins. He is a sceptic in order to escape "from the shame of appearing inconstant." But having twice apostatised, his claim to constancy must be sought for elsewhere than in religious matters. He defends himself against all dogmatic after-thoughts. "I am nothing," he says, "but the cloud-compelling Jupiter; my talent consists in creating doubts." Nature "is an impenetrable abyss". . . man "the toughest morsel for all the systems to digest;" principles of morality, proofs of liberty, essence and destiny of the soul are questions in which the *pros* and the *contras* are everywhere balanced. Are we to cling to religion? "Let it no longer be said that theology is a queen and philosophy only her handmaid. . . . Every dogma that is not, so to say, rendered conformable to, verified and registered by, the supreme parliament of reason and natural light, can pretend to nothing but a wavering authority fragile as glass.

And the Deity? The belief in his existence might, strictly speaking, rally all mankind to one standard, which is not the case. For how shall we agree as to his nature? Of his perfections we have merely negative ideas. His attributes clash together, immutability ill-assorting with freedom, immateriality with immensity. The existence of evil gainsays his goodness; human liberty contradicts his fore-knowledge. Without possessing the least idea of a deity, man may still distinguish virtue from vice, and the atheist

often leads a better life than the believer. In any case who would not prefer atheism to superstition and idolatry?

It is on this question of atheism that Bayle is really constant. His mental reservations failed to deceive Jurieu, his friend and companion in exile, afterwards his rival and accuser, nor can they beguile posterity. Of what account are they when compared with the services rendered by Bayle to the cause of free thought.

Let us return to the abstruse and recondite.

We have seen that Descartes lacked boldness and logical consistency. He shrank from introducing into the intellectual world mathematics, sovereign of the material, and he retained the old dualism of mind and matter. Spinoza now comes to fill in the gulf; but he does not seek his materials from experience, and metaphysics supply him with nothing but arbitrary illusions. Spinoza's personal integrity, the justness of some of his moral themes, his lofty contempt for religious superstitions, his democratic tendencies, will always endear him to all large-minded thinkers, but cannot disguise from them the emptiness of his system.

Baruch Spinoza, inspirer of Lessing, Goethe, Novalis, Schleiermacher, Jacobi, Hegel, and Schopenhauer, was the son of a Portuguese Jew, and was born at Amsterdam on November 24, 1632. After acquiring Latin under Van den Ende, a physician suspected of atheism, he studied theology and physics. The perusal of Descartes' writings decided his vocation, and his first work was an excellent summary of the "Principles of Philosophy" (1660). He had already ceased to frequent the synagogue, and the rabbins, failing to seduce, bribe, or assassinate, publicly excommunicated him, according to the tremendous formula of *Thammatha*. The only consequence of the anathema was the flight of its innocent but obstinate victim. Spinoza's frail and sickly constitution was sustained by an unflinching courage, a calm and unalterable resolution. In order to be independent of all patronage he learned a trade. Philosopher and grinder of glasses for astronomical telescopes, he took an apartment at the Hague, sharing his time between study and manual labour, living on twopence or threepence

a day, inaccessible to all seductive promises, to all honorary or pecuniary advantages, but affable, reserved, generous, somewhat of a moderate stoic. His "Tractatus Theologico-Politicus" exposed him to so many attacks, protests, and other annoyances, that he resolved to publish nothing more in his lifetime (1670). His "Ethics" (A moral system demonstrated according to the Geometrical Method), his "Political Treatise," and his "Reform of the Understanding," did not appear till after his death, in 1677. He had suddenly expired on February 23rd of that year, aged forty-five.

The deductive logic of Hobbes implies experience and induction; that of Spinoza attests and then takes no further account of them. There are four degrees of perception: hearsay, vague experience, discursive reason or recognition of relations, lastly, intuitive reason or immediate recognition of essences and true causes. Strictly speaking, experience shows what is; logic, what ought to be; and what ought to be is alone endowed with absolute existence.

The first object of intuition is the perfect being.

Such is the arbitrary, illusory, unproved principle from which, by means of theorems and demonstrations, Spinoza deduces the mechanism of the universe. "The perfect method is that which teaches how to guide the intellect under the law of thought and of the absolutely perfect being."

The perfect being is substance. Nothing exists except infinite substance. "It is of the nature of substance to develop itself necessarily by an infinity of infinite attributes infinitely modified." These attributes, inseparable from substance, infinite like it, since they constitute it, but relatively only and each in its own degree, are manifestations of the supreme reality, determined by an infinity of finite figures and modes.

Of infinite attributes, intuitive reason recognises two only: extent and thought, distinct, though connected in their modes, united and identical in substance. Substance, its attributes, the modes of its attributes, unity and diversity, are but one; this one is the being; the being is God. If you deny God, imagine, if it

be possible, that God exists not; would not his essence then involve existence? But that is absurd; hence God necessarily exists. (?)

In a word, God is extension in itself, the immovable and indivisible immensity; God is the absolute perfect thought, absolutely undetermined, without understanding or will, having for his only object, substance in itself, detached from its attributes. But God is also the infinity of the infinite attributes of substance, and the infinite diversity of their finite modes. God is therefore at once the undetermined and the determined, the *natura naturans*, and the *natura naturata*, the latter being the manifestation of the former.

God in himself neither thinks nor wills; but, again, he is thought in itself.

God in all (in attributes and modes) thinks and wills.

He is at once the infinite expansion and the divided expansion: God is the unity of diversity.

Body and soul are two modes of the substance, one the attribute of expansion, the other of thought. Of the soul the essence is thought with its forms, sensibility, will, imagination, which, taken apart, are mere words. This is pretty well the doctrine of Descartes. Spinoza adds that the soul is a thought of God. But, through a strange subtlety, he very uselessly denies that this human thought—a mode of the divine thought—has anything in common with God, who nevertheless is identical with it in substance.

How are body and soul united? To every mode of expansion corresponds a mode of substance. "The order and connection of ideas is the same as the order and connection of things;" which sounds like an echo of the cabala and the Alexandrian pantheism. The human soul is the *idea* of the human body; an idea composed of several ideas, as the body is composed of many molecules. Will, understanding, are beings of reason realised by the vulgar; at bottom there exists nothing but a series of perceptions, of volitions, &c., of intellectual facts. Intelligence is the idea considered as a representation; will is the idea considered as volition. In real life representation and action are identical. It is the nature of thought

to represent itself with its object. What we call consciousness is a pure abstraction, if it be separated from substance and from the two attributes of which the soul and the body are modes.

All bodies, such is the law, are animated. To extended organisms, according as they are more and more simple and gross, correspond souls less and less active. Thus the automatism, by Descartes attributed to animals, is extended to man, becomes common to all nature. All is necessary, fated, ruled by an inflexible development. Free will is an illusion, based on the impossibility of tracing back the complete concatenation of causes.

All is eternal in itself, as substance, which is tantamount to saying that the variable *modes* are not immortal. In spite of the system of rewards, based by Spinoza on the degrees of perfection attained by the soul during the earthly life, he cannot escape from the necessity of formally denying all personal immortality. The dissolution of the organism suppresses imagination and memory, that is consciousness. "There is," he says, "in the human soul something eternal. We feel that we are eternal." But are we modes of the eternal endowed with expansion and thought?

We have expounded all together Spinoza's logic, metaphysics, and psychology, which in truth form an inseparable whole. But is it necessary to point out that they are suspended in the void by the side of the real, which they touch incidentally only? Their starting-point is arbitrary, their conclusion barren. Spinoza rejects far enough the scholastic entities, yet he fails to perceive that substance, expansion, thought are nothing but realised abstractions. *In themselves* they are merely general terms. The god constituted by them is but the quality of being raised to a vague state called perfection. He is equivalent to an idea elaborated by the twofold mode of expansion and thought whose name is Spinoza. The spiritualists, eclectics, and others, who have made unto themselves a god by means of analogous ideas and general terms, but who have at least endeavoured to represent him as a personality endowed with conscience and will, have little difficulty in demonstrating the emptiness of Spinoza's god. If he is all, they argue, substance, attributes, modes, at once unity and diversity, he is nothing apart

from the totality of things, nothing beyond them; hence he is supererogatory and useless. If, again, he is the substance only—the attribute and mode *in itself*—he is a mere verbal illusion; in a word, nothing. Whether he be all or nothing amounts to the same thing.

Further, if the god of Spinoza were superfluous only, adding nothing to, that is to say, changing nothing of reality, he would be the least dangerous of all deities, the most compatible with science, since he imposes neither prayers, nor superstitious practices, nor a priesthood. Observation would have merely to set aside the beings *in themselves*; there would remain the *realities*, or what Spinoza calls the *modes*. But Spinoza's logical myth involves a capital error, seemingly of a specious character, since it has suggested the hypothesis of the monads, and beguiled the contemporary *Monists*—the extension of life and thought to all nature under the form of a general and infinite attribute. If expansion is a quality inherent in all matter, thought is only an accident of matter; for it occurs only in certain so-called living combinations (organisms), and not even in all, and nowhere else. Here becomes manifest the anthropomorphism from which Spinoza wishes and thinks to escape.

It may have been noted that his psychology, although very skilfully connected with his metaphysics, is much less removed from the real world. It is the materialism of Hobbes translated into an abstract language. The same character marks the pure and noble morality of his ethics. No doubt it surprises the dualistic metaphysicians, who admire the rigorous logic which associates it with Spinoza's determinism, but who at the same time point out what they regard as its fundamental inconsequence. In fact, free will and a future life are for them the *conditio sine qua non* of all morality. We, however, hold the opposite opinion. Besides, Spinoza's moral system has after all very little to do with his metaphysics; it flows, on the contrary, from the true principles of all morality—our common wants and interests—and it is this which constitutes its true value.

But it would be tedious to distinguish the superfluous metaphysical

data from the real ethical elements of Spinoza, so intimately are they blended together. In our brief recapitulation the reader will easily draw the line between the two.

Absolute perfection, which belongs to substance, manifesting itself by modes; there are degrees in relative perfection and consequently in good: degrees ascending continually towards the perfect being, and descending towards negation, the last limit of good, that is to say, to evil.

Good, identical with pleasure, is that which preserves or enhances the being, is in fact the useful. Evil, or pain, is that which diminishes the being.

The best, the highest life, is that which involves the greatest perfection—the life of the soul, which has the clearest and most *adequate* (that is, most conformable, to their object) ideas regarding itself and outward things, which of its ideas forms a chain whose link is the perfect being. The desire and love of God become translated into the love of mankind. It is a law of our nature that our affections are increased when they are shared with others. The aim of morality is to unite all men in one soul by the community of one love. Love is the keystone of the arch of morality, religion, and society.

The reward of good lies within itself, in the perfection it produces.

The punishment of evil is in the lapse it involves.

It is thus that Spinoza's pantheism becomes in his ethics a pure deism. It will be easily understood, that this platonic lover of the perfect being has little relish for ceremonies, miracles, prophecies, sacred writings. For him there is but one injunction in the gospel: "Love one another." All the rest he regards as "fictions of an Aristotle or a Plato, or the creators of systems, fictions which a simpleton would rather find in dreams than the wisest men in the world in Holy Writ."

The origin of all discord are the encroachments of the ecclesiastical authority. Religions have had quite power enough over states; states must henceforth regulate and watch over religions.

Still more than his ethics, Spinoza's politics deal with the realities

of life. There are detected in them a few only of the false ideas suggested by the moral atmosphere of the monarchical epochs to Hobbes, as later on to Rousseau. His principles are excellent. Before the foundation of societies the right of each individual is coincident with his power; there exists neither justice nor injustice, neither good nor evil. Society results from a contract either expressed or implied, based on the individual interest. The individual injured by the contract will inevitably attempt to ignore it. But so long as it holds good its rupture must be put to the charge of the transgressor. Hence laws and penalties.

Carried away by his love of order, Spinoza sacrifices the individual to the State, concluding with Hobbes for absolutism. To the sovereign he grants exorbitant powers, innocently convinced that his very interest will preserve him from excesses. A more valid guarantee, which he claims for the individual, is the inalienable character of certain natural rights, amongst which he includes freedom of thought.

Spinoza endeavoured to complete the work of Descartes by bringing men and thought within the general plan of the universe. Herein consists his true greatness. To reality he applied the arbitrary schemes of logic. Herein consists his weakness. Abstract analysis is a dangerous instrument when it ceases to be the complete and exact transcription of the concrete. Owing to his neglect of experience, Spinoza missed the solution of the problem proposed by the dualists. * Accepting thought as a substantial property, equal and parallel to extension, he vainly pronounced it inseparable from substance; he left it that metaphysical existence which is still the stumbling-block of philosophy. But the shock which his free and penetrating genius imparted to the old props of religions, psychologies, moral systems, and intermediate truths, gives him more than one title to our gratitude. He throws the most vivid light on the contradictions of rationalism, enabling us, so to say, to put our finger on them. Hegel, he reduces beforehand *ad absurdum*, compelling him, after his own example, to take refuge in the identity of the contradictory. By the very fact of failing to triumph over them

he has shown their nothingness. Hence the abuse that has been heaped on his work and his memory. Pantheist, atheist, deist, mystic, materialist! The whole philosophic hive is astir. Bayle himself, Bayle the sceptic, loses all self-control, and Malebranche, whose only value derives from an atom of Spinozism diluted with Christian sentimentality, exclaims: "This wretch!" He describes as "monstrous, a horrible and ridiculous chimera," the doctrine he cannot refute, because he shares it; and the most satisfactory feature in this chorus of abuse and insults is that they mutually contradict each other and that all have their *raison d'être*.

Although he alarmed the antagonistic orthodoxies of Bossuet, and Arnauld, and although he struggled between the schoolmen and the Cartesians, Malebranche enjoys a less stormy reputation. He is tenderly treated, extolled, revered by our modern eclectics. In spite of his virtues we might leave him to these academical eulogies, which do him wrong; but he has not quite deserved them all, and being moreover a Parisian and a pleasant and voluminous writer as well as a wearisome philosopher ever harping on one string, we shall devote a page to his "Vision in God."

Born in 1638, Malebranche joined the Oratory while still a young man. So feeble was his constitution that the perusal of Descartes' "Man" caused him palpitations of the heart strong enough to compel him several times to lay aside the work. The composition of his "Search after Truth" cost him ten years of meditation; but the enormous success of this book (1674), remarkable for the brilliant qualities of its style, sharpened his mental faculties, and the flow of his thoughts henceforth experienced but few interruptions. He produced successively the "Metaphysical and Christian Conversations" (1677); "A Treatise on Nature and Grace" (1680); "Metaphysical and Christian Meditations" (1683); "Ethics" (1684); "Discourses on Metaphysics and Religion" (1688); "A Treatise on the Love of God" (1697); "Conversations of a Christian and a Chinese Philosopher" (1708); &c. &c.

For Malebranche philosophy begins with Descartes. Evidence he accepts as the criterion of truth: "Never to give entire assent

except to such propositions as *seem* so evidently true that to withhold our assent occasions an inward pang and the secret reproaches of reason." Less daring, however, than his master, he tells us that we are to consult faith alone in the order of *supernatural* truths. Hence a perpetual mixture of Christian dogmatism and rational truth; hence, also, some extremely doubtful propositions from the orthodox point of view, which give occasion to the admonitions of Bossuet and Arnauld. For instance, he explains original sin by the persistence of certain hereditary traces in the brain. In the Eucharist he sees a figure of this truth: God is the nourishment of souls; in the Incarnation, the union of the Creator and creature, the necessary condition of creation; in the deluge and in miracles, the natural effects of unknown laws; the scriptures are full of figures intended for the use of the vulgar, &c.

Otherwise reason and faith have the same object, and absolutely speaking they are identical. "Reason is the same in time and eternity, *the same amongst us and amongst strangers*, the same in heaven and in hell. It is supreme and infallible; it is the Wisdom, the Word, Jesus Christ! Faith is but an approach towards the Intelligence, the immediate intuition. It is a safe guide, because Revelation alone can satisfy us as to the existence of the universe. What is evidence? A revelation of God, of the "veracious God" of Descartes. How could it be otherwise, since *we see all in God; God does all in us?* The whole psychological and moral system of Malebranche is comprised in this half Christian half Spinozist formula.

But what proves the existence of this God? Faith, revelation. What besides? The idea we have of him. "If we think of God, he must needs be." The idea of God is God himself. Lastly, there are the final causes, a commonplace dear to Fénelon, and which supplies floods of gushing eloquence to Malebranche.

God is necessary, unchangeable, all-powerful, eternal, immense. His immensity is his substance; order, justice, all general ideas are his substance. He is free, but not like the Cartesian god, for he can will the good alone. Hence an *optimism*, which we shall again

meet in Leibnitz. He has created all, but he allows the annihilation of nothing lest he should seem inconstant. In any case he has arranged everything for the best. He does good, and only tolerates evil. Evil is the necessary result of the laws established for the general welfare by a general providence. God distributes grace like a shower, which falls where it can.

But, personally, what is this God? He is the intelligible expansion, an idea which Arnauld declares to be unintelligible. We may refer him to Spinoza and to Fénelon, who place in the reality of God whatever is real in the created expansion. Such vagaries have already occurred too frequently to require that we should here dwell upon their absolute futility. To cut the matter short, man and the universe, neither more nor less, remain what they are, whereas the system of Malebranche vanishes with so many others and leaves no trace behind!

The universe of Malebranche, like that of Descartes, admits two divisions: matter, subjected to the inevitable laws of motion; spirit (life and thought), conceived apart from expansion, and which nevertheless remains in the intelligible expansion, Spinoza's substance. One scarcely understands why he withdraws plants and animals from the Cartesian automatism, since his God alone is the real, the *efficient* cause, as well in man as in the air or the water. Creatures are merely the *occasional* causes of the phenomena which God produces by their instrumentality, of the relations which God establishes between them. The intervention of God is continual; this is the *continuous creation* of Descartes, though, as it seems to us, rendered superfluous by the *pre-existence of germs*, an epicurean idea subtilised by Malebranche.

Man is composed of body and soul; but neither does the body act on the soul nor the soul on the body; God alone causes their acts to harmonise (Leibnitz). The soul partakes both of the body and of God; its nature involves a perpetual ascension towards the perfect being (Spinoza); its object is to get detached from the body. But why, if the body does not act on it and if everything is for the best?

This soul (which is less known to us than the body, Descartes

notwithstanding to the contrary, since conscience is but a *vague and obscure sentiment*) is one and indivisible. Its essence is thought, of which its faculties are but modes and different phases. According as it is regarded as capable of receiving several ideas or inclinations, it is the understanding or the will. These two properties may be compared with those of matter, which is capable of receiving diverse forms and diverse motions.

The understanding itself comprises three faculties: sensibility, imagination, which are capable of sentiments only, and pure understanding or reason, which alone thinks, knows, acquires truth.

Sentiment, produced in us by God, who knows without experiencing it, is the cause of all errors, errors that have been analysed with much subtlety in the "Search for Truth."

The understanding, the idea is in God; numbers, expansion, the essence of things it perceives directly. We have seen that the types or ideas of Plato, simple general terms, pure scholastic *universals*, are not distinct from God, that they constitute the divine essence. "When I behold the sun, I see the idea of the circle in God, and I have within me the sentiment of light." Malebranche might have said: When I behold a bed I see the idea of the parallelogram in God, and I have the sentiment of repose. What pitiful logomachies!

Will is the natural divine impulse, directing us towards good in general. This good is God, and God impels us towards himself. God is a sort of metaphysical ether, sole cause of pleasure, intermediary between creatures, which of themselves are destitute of all reciprocal action. Hence will can have no individual existence. Human liberty has nothing real, whether relatively or absolutely. The love of God for his own substance, of which our thought forms a portion, is the principle of our love for him, a fated and selfish love, since its object is salvation—bliss through perfection. Prayer can have no efficacy, for all is fated. Malebranche cannot escape from this conclusion.

Prayer "is good for Christians who have preserved the Jewish spirit."

But in the midst of all this what becomes of Christianity? A

strange mixture of vivid, ardent, absolute piety and metaphysical delirium! Better return to the Alexandrians, to Plotinus, and Augustine. All the philosophy of Malebranche is a monstrous and interminable comment on the words of Paul: "*Non longe est ab unoquoque nostrum, in ipso enim vivimus movemur, et sumus.*"

We may now pass on to the *pre-established harmony* and the *sufficient cause*, fresh verbal triflings, the emptiness of which we are still called upon to expose. At the same time Leibnitz is a man of a very different calibre from Malebranche, reaching the level almost of Descartes or Spinoza. And, although we shall again meet in his metaphysics all that we have been familiar with for some two thousand years, we shall still have more than once to do homage to the precision and penetration of his genius. Ample details may elsewhere be found regarding his encyclopædic mind, his mathematical discoveries, his amazing activity, taking part in all the questions, religious and political discussions of his time. In this summary of philosophic systems we must limit ourselves, in his life and works, to what has reference to the conception of man and the universe.

Leibnitz was born at Leipzig in 1646, and died in Hanover in 1716. He resided in Paris and London for five years, 1672-1677, in Vienna and Berlin; he travelled in Germany, Italy, Holland, but lived mainly in Hanover. He was precociously learned, and before his twentieth year was already a jurist, mathematician, and philosopher. At first a *nominalist*, and inclined to recognise in substances alone a positive reality, he soon developed metaphysical tendencies. By dint of speculating on the abstractions of mathematics, he grew accustomed to personify, to *realise*, general terms, to look for certainty in logical demonstrations.

This tendency is already very manifest in a letter he wrote from Paris to the Duke of Brunswick in 1673, that is, in his twenty-seventh year. Here he asserts that, "in all bodies there is an incorporeal principle," that all motion supposes an intelligent principle, that a universal harmony, having its cause in God, sways the universe, that the soul is immaterial and immortal. All these

assertions he associates with *natural theology*; nay, more, influenced by the prevailing mysticism, he admits a *revealed* theology, and takes an interest in the question of the *real presence*, just as if he had plenty of time to lose. Later on, in his "Protogaea," a grand sketch of the *new geography* (or geology), we find him endeavouring to harmonise science with the Biblical cosmogony.

From scholasticism he passes to Descartes' mechanism, whose clearness delights him, and whose fatalism alarms him. He dislikes the idea that all activity is either relative or passive, and he introduces into metaphysics a new entity, the idea of force ("Reform of the First Philosophy, Notion of Substance"). While very well defining time and space, the order of co-existent and successive things, he fails to perceive that force is a relation between two or more motions, that motion itself is reduced to the succession of diverse states of bodies; lastly, that force apart from motion, motion apart from matter, are merely abstractions void of reality, convenient summaries. So also with the Newtonian attraction, so with laws themselves, which many would wish to regard as a something, a one knows not what, independent of the facts whose general characters are expressed by them.

"We may," he says, "explain mechanically, by the motion of the ether, gravity and elasticity; but the ultimate reason of all motion is the *force* originally communicated to the universe, a force which is everywhere present, but which, precisely because present in all bodies, is diversely restrained and limited; this force, this virtuality, is inherent in all substances bodily or spiritual." In his "New System of Nature, and on the Communication of Substances" (a paper inserted in the "Journal des Savants," 1659), he revives Aristotle's *ἐντελέχεια*, and the *substantial forms* of the schoolmen, and conceives certain *unities*, *primitive forces*, endowed with an original activity, *constituents of substances*, atoms without matter, *metaphysical points*; in a word, the incorporeal principles of bodies. He of course admits the existence of spirits, souls created in the image of God. In fact, Leibnitz never got beyond the old dualism. Whilst bodies, through the metamorphoses suggested

by the theories of Swammerdam and Malpighi, pass from life to seeming death, souls, citizens of the spirit world, retain their individuality forever. *

Nevertheless, the false problem of the union of soul and body demanded a fresh solution. Thinking to preserve the Cartesian doctrine, which denies all reciprocal *influence* to beings of any sort, and to reject, with Malebranche's *occasional causes*, the perpetual intervention of a *Deus ex machina*, Leibnitz supposes that an agreement, established beforehand by the Creator's will, causes the motions of all substances to correspond exactly. This *pre-established harmony*, which is nothing but the concomitance or sequence of motions, and which adds not a jot to the reality of things, secures for the god of Leibnitz the title of an excellent clockmaker: his watches never get out of order. What however becomes of that *intelligent spontaneity*, that free action, that will, all so dear to Leibnitz, and which he means at all cost to guarantee for the individual soul? For a piece of clockwork cannot be called free. He asserts and repeats in vain, that "every spirit is a world in itself, self-sufficient, embracing the infinite, expressing the universe, as lasting and absolute as the universe itself, which it represents from its point of view and by its own virtue." Are not providence, pre-established harmony, *predelineation*, mere synonyms of fatality?

And from another standpoint, are not fatality and providence terms void of all sense? To say that what is had to be, is saying nothing. But like all metaphysicians and logicians, Leibnitz detected in this tautology vast depths; behind geometry and physics he clearly perceives the nature and attributes of God, and of course also the old final causes. The source of all philosophy lies for him not in the knowledge of things, but in the divine perfections. This conclusion is amazing in the case of such a savant, of a man so careful to collect and classify all facts, and who conceived the plan of an encyclopædia defining all terms, all artistic and industrial processes, embodying with a summary of universal history, the history of all the sciences. But everything is explained by his early training and surroundings.

In spite of some fresh terminology, the method of Leibnitz scarcely differs from the spiritualistic logical systems ("Meditations on Knowledge," "The Method of Certainty, and the Art of Invention," &c.) Two sources of knowledge: careful observation, solid demonstration, but the whole regulated by reason. For it is reason that, beyond the truths of reality contingent in their nature, discovers the immediate and necessary truths. Hence experience is sacrificed. Two principles of certainty: *principle of contradiction*, in virtue of which everything involving a contradiction is declared false (why did he not apply it to God and the soul?); *sufficient reason*, that is to say, the necessity of giving a reason for every truth which is neither *immediate* nor *identical*, in which the idea of the attribute is not implied in that of the subject. An instrument of research—analysis. But what is this analysis? The reduction of conceptions to their simplest elements, to the first possibles, to the irreducible ideas, that is, to the attributes of God. Why? Because God having by his thought produced the universe all things are identical with the divine ideas!

The logical truth becomes equivalent to material truth, *rational possibility* to reality, because all non-contradictory possibles *tend to exist*. Thus the abstract becomes the element, the *raison d'être*, of the concrete substance itself. And thus also we fall back headlong into the realism of the schools.

Of all the philosophic works of Leibnitz, assuredly the most remarkable is the little novel entitled "Monadology" (1714), which sums up his *theodicy*, and which is in a way his last will. In it we discover nothing seriously departing from the preceding considerations. The monads are these "metaphysical points" already referred to, differing in quality, like the atoms of Epicurus, but simple, incorruptible although subject to inward changes, whose principle is *appetition*; in plain English, *desire*, and whose result is perception. Some are gross, some subtle; some are blind, others intelligent, although all alike are absolutely incorporeal. According to their nature they either remain souls or become bodies. Animals have inferior souls, with a knowledge of the contingent alone; the soul of man perceives the necessary truths,

or possesses them in the innate state. God alone is a bodiless monad acting according to the principle of *suitability*. Hence the pre-established *harmony*. Free will also, included by Leibnitz amongst the divine attributes, is no less absolutely determined, since God is limited to the choice of the best. And yet it was God who by *fulguration*, or emanation, created all the monads, the good and the bad alike, the stupid no less than the intelligent. Both personal immortality and the love of God, optimism as well as religion, all heirlooms of metaphysics, are by Leibnitz somehow coupled with this fanciful hypothesis of beings void of parts, which are reality *in itself* stripped of its conditions of existence.

These chimeras play a sorry part by the side of the *clear* ideas (so dear to Leibnitz himself) of a Gassendi or a Locke, or even in contrast with the bolder structure of a Spinoza. Nevertheless, they overshadowed German philosophy from the time of Wolf (1679–1754) to the revolution effected by Kant, though even Kant himself, according to Désiré Nolen, retained much of Leibnitz. There is, above all, one principle, which is the base of all critique, and which he gets by direct descent from the "New Essays on the Understanding" (1703). This is the principle of the independence and priority of the intellect as regards sensation. Nothing is in the mind, said Locke, that does not proceed from the senses. "Nothing," answers Leibnitz, "except the mind itself, with its proper nature and functions." This gratuitous assertion beguiled Kant as it did so many other dualists. They argue thus: Let us allow that there is nothing in the intellect which does not flow from sensation; how do we know it? Through the intellect; therefore the intellect is something in itself, a witness, a judge, or, at the least, the place where sensation ends, the power of acquiring, of collecting sensation and arranging its images. Experience alone suffices to upset this logic. When man is not satisfied with analysing his adult intellect as an irreducible fact, when he studies the child, he clearly sees that sensible impressions precede consciousness and memory, and that from memory are developed imagination and reason. The condition of sensation is not the intellect, but the existence of *man*, of the living organism we call man, the unity of this organism,

endowed with a nervous system which concentrates to intelligence the elements supplied by the senses. To subtilise this organic unity to a virtuality of any sort, whether called soul, spirit, reason, or understanding, explains absolutely nothing. It merely converts an abstract and useful term into a pure and idle metaphysical entity.

§ 2.—*Deistic Sensualism: Locke. General Survey of the Schools in the Eighteenth Century.*

A genuine source of pleasure, a refreshing respite it must ever be, after long and painful plodding through fog and quagmire, to reach solid ground, to behold the rising sun, or find a seat by a bright hearth, though the land be still rough, the sky become overcast, the embers flicker and die out. Such is the feeling we experience when, leaving Malebranche and Leibnitz, we recover our footing on the firm soil of reality under the guidance of Locke. Not that Locke is altogether a bold leader, following to the end, and without faltering, the path he has himself pointed out. On his eyes are still the scales that clouded the vision of his forerunners and contemporaries. But his *rational christianity*, his natural religion, his fervent and shallow deism, which supplied Voltaire with so many commonplaces, can never make us overlook the services rendered to philosophy by the "Essay concerning Human Understanding." He would still have to be reckoned amongst the emancipators of thought, had he done nothing but proclaim the too-often-forgotten truth that "experiment is the foundation of all our knowledge."

The life of Locke (1632-1704) was chequered by many political vicissitudes. He found himself entangled in the events that brought about the fall of the Stuarts, or at least he had to suffer from the reaction. Associated with Lord Shaftesbury, he accompanied that statesman into exile, resided some time in France and Holland, and did not return to England till after the accession of William III. His weak health, his modest tastes, his love of philosophy, prevented him from retaining a lucrative appointment conferred on him by the new government. With a rare nobility,

he refused to accept the emoluments of an office he was unable to discharge. His last years (1700-1704) were passed in retirement, and he died a most edifying Christian death, a circumstance which we mention only for the purpose of pointing out the limits of his independence in respect of the prejudices of his times.

After a long search for his true vocation, the perusal of Descartes convinced him, as it had Spinoza, Leibnitz, and Malebranche, that he was intended for a philosopher. But he was a countryman of Bacon and Hobbes, and he had no relish for the idle speculations which pretended to explain facts without observing them. Leaving his contemporaries, Cudworth and Norris, to their metaphysical vagaries, he set himself to considering the operations of the mind, to decomposing ideas, to studying the nature and origin of our knowledge. Nevertheless, his "Essay," "begun by chance, continued by entreaty, written by incoherent parcels," was not reduced to a systematic treatise till the year 1688, when he published a summary of it. The work itself did not appear till 1690, when he was fifty-eight years of age. It may even be asserted that he was not himself at first, perhaps, fully conscious of the revolution which he was preparing. His education concealed from him the ultimate reach of his method. "Five or six friends," he tells us, "meeting at my chamber, and discoursing on a subject very remote from this, found themselves quickly at a stand by the difficulties that rose on every side. After we had awhile puzzled ourselves without coming any nearer a resolution of those doubts which perplexed us, it came into my thoughts that we took a wrong course, and that before we set ourselves upon inquiries of that nature, it was necessary to examine our own abilities, and see what objects our understandings were or were not fitted to deal with. This I proposed to the company, who all readily assented, and thereupon it was agreed that this should be our first inquiry. Some hasty and undigested thoughts on a subject *I had never before considered*, which I set down against our next meeting, gave the first entrance into this discourse" ("Epistle to the Reader"). A modest starting point, which easily explains the insufficiency of the intermediate san-

sualism introduced by Locke, accepted by Voltaire, developed by Condillac. Nevertheless, it was something to have attempted to examine, as he tells us, step by step, in a clear and historic manner, the faculties of our mind, to show by what means our understanding comes to form the ideas it has of things, and to define the limits of certainty and the foundations of the opinions which we see prevailing amongst mankind. Locke's work is an introduction to the scientific study of mental phenomena. Its merit consists in clearing away the rubbish that hitherto encumbered the way.

At the very threshold of psychology, and as if to obstruct its approaches, metaphysicians placed innate ideas, reminiscences of a pretended universal reason brought by the soul to its earthly abode, concepts anterior and foreign to all operations of the mind, universal and necessary; idea of the absolute perfect, good and beautiful, of the infinite, of God, &c. But these ideas are found to be the result of abstraction, and are wanting in the child, in many savages, in the idiot. Therefore they are not universal, nor anterior to the operations of the mind; they are not innate. Locke is right in saying in the first book of the "Essay" that there are no innate principles either in the speculative or the practical order. Descartes had thought to save their innate character by arguing that if we do not bring with us certain ready-made ideas from our birth, we are at least born "with the faculty of acquiring them." But what is a faculty, but a class in which we group certain series of phenomena? To take the term in its metaphysical sense, if we are born with the faculty of acquiring innate ideas, we are also evidently born with the faculty of acquiring all others, which will therefore have the same claim to be regarded as innate. Given the organism, all that it involves is equally given. Either all ideas or none are inborn. But the fact is, all are acquired, their gradual development in the child being amply sufficient to demonstrate this evident truth. Nor are there any exceptions to make in favour either of the ideas depending partly on hereditary dispositions and aptitudes, or of the idea of personality of the ego. In fact these predispositions, individual

existence itself, represent merely one of the two conditions under which the idea must be developed, the other condition being contact with the outward world. The steel has an aptitude to emit sparks, but it will not do so until brought into contact with the flint; the steel answers to the inherited dispositions, the flint to the outward world. Every idea expresses a relation, supposes a subject and object. Conscience, or the idea of the *ego*, is not awakened until the moment when the living organism, the subject, becomes distinguished from the surroundings by which it is limited and affected. Does it begin before birth, before that first cry forced from the child by the rush of cold air to its lungs? This is a secondary question, and we give it for what it is worth. Locke himself does not propose it, being satisfied with the ascertained fact that the child becomes conscious of itself only according as its senses receive impressions. For him the soul, whose existence he does not discuss, is in the child a *tabula rasa*, a blank sheet of paper on which sensation gradually writes ideas. Without actually defining the soul as it would now be defined—a cerebral activity excited by the deposit, the persistence, and association of ideas—Locke may have regarded it as a product of sensation. He supposes that the soul, revealed to itself by sensation, reflects on the mental operations which are the consequences of sensation. His vague theory of reflection is the weak point of book ii. on “Ideas.” But by the side of some confused distinctions between simple and complex ideas, how many brilliant and suggestive thoughts on memory, comparison, the association of ideas, on abstraction and ratiocination! He surveys some of the pretended innate and necessary ideas and shows their contingent character. In the epitome of his great work, published in 1688, he thus explains the acquisition of the idea of the infinite. “Forming by the observation of certain bodies the idea of the size of a hand, a foot, a cubit, we may repeat this idea as often as we please and thus enlarge it, adding a similar or a double extent to the preceding. We thus get the idea of immensity, which is, nevertheless, based on the idea of space, which we have received through the senses. Applying the same analysis to

duration and number, he reduces to ideas of indefinite succession and addition, eternity and mathematical infinity, thus reducing them to their experimental origin.

He is less happy in his inquiry into the ideas of body and substance, which he seems to regard either as the sum of the ideas of quality or as a hypothetic *substratum*. Failing to reflect that the quality implies the substance, and that the existence of bodies is the first certainty acquired through the sense of touch, he almost converts them into logical entities; thus opening the door for the scepticism either of Berkeley or of Hume, for that idle doubt to which we are indebted for the hypothesis of the divine veracity, and which has never ceased to beset modern English psychologists. Nothing, in fact, will avail to make sensation the foundation of knowledge if we overlook, or call in question, the *objective* reality of sensation. Then it happens that reality, deprived of its criterion, is readily attributed to simple abstractions or compositions of ideas, such as the soul or the Deity. Locke does not escape from this illusion, nor does he consider that he detracts from the experimental method by conceding an immaterial substance to spirit and to God, but, in book iv., hesitating so far as the soul is concerned. It should, however, be observed that to him the hypothesis of a soul is absolutely needless, and that he elsewhere very well elucidates the contingent and relative nature of the idea of God. It is owing to these contradictions, otherwise apparent enough, that sensualism has remained deistic, easily adapting itself even to Christianity. And yet so little do they form part of the real essence of the system that neither in Locke nor in Condillac have they modified the correction of their moral theories.

Locke refers the ideas of good and evil to sensation and to the impression of pleasure and pain inseparable from it. Everything, he remarks, that is apt to cause, to continue, or increase pleasure in us, or to diminish or shorten any pain, is called good; and the contrary we call evil. On this good and on this evil turn all our passions—love, hatred, desire, joy, fear. A faculty is a series of acts, the habit of which causes us to feel the sense of power within us. The power which we find within us of preferring the presence

to the absence of a particular thought, or the presence of a particular motion to repose, is what we call will. The actual preference of an action to its cessation, or to the contrary, is what we call volition. The power that we find within us of acting, or not acting, according to the preference our mind has given to action, supplies us with the idea of what we have called liberty. Although not complete, these analyses are none the less shrewd and penetrating. However, Locke takes no account of the *emotional* effects of sensation. He deals, not with the affections, but with the understanding. He is satisfied with establishing the truth that knowledge results from sensation and reflection; and he has nothing further to do except to determine the part played by the various faculties of the mind in the employment of the materials collected by the memory. But when he comes to consider somewhat more closely the nature of human knowledge, he finds "that there is so close a connection between ideas and words" that "it is impossible to speak distinctly of our knowledge, which all consists in propositions, without considering first the nature, use, and signification of language" (book ii. *ad finem*).

However simple this remark may now appear, none other struck his contemporaries more forcibly, and with good reason. In an age when the science of language was not so much as suspected, it required some genius to surmise that words mean nothing except through habit and convention; that they are the signs of ideas; that without them the impoverished memory would be incapable of supplying the mind with the materials of its most delicate and yet most necessary operations; that abstraction and ratiocination could not get beyond the rudimentary state to which they are restricted amongst animals. Locke thinks he may assert, and the actual structure of speech justifies the assumption, that words, like ideas, represent qualities only, and do not penetrate to the real essence of beings. The names of the best-known bodies are but partially qualifying terms raised to the substantive form, abstractions to which we attribute a concrete value. Without further probing this doctrine, which has lately been much shaken by Michael

Béal, in his "Aryan Roots,"* we may remark that it fully justifies Locke in refusing all reality to the *universals*, to the categories, to genus and species. "General natures are nothing but abstract ideas For let anyone reflect, and then tell me wherein does his idea of 'man' differ from that of 'Peter' and 'Paul,' or his idea of 'horse' from that of 'Bucephalus,' but in the leaving out something that is peculiar to each individual, and retaining so much of those particular complex ideas of several particular existences as they are found to agree in? And, not to dwell longer upon this particular, so evident in itself, by the same way the mind proceeds to 'body' (substance), and at last to 'being' (thing), and not universal terms, which stand for any of our ideas whatsoever. To conclude: this whole mystery of *genera* and *species*, which make such a noise in the schools, and are—with justice—so little regarded out of them, is nothing else but abstract ideas, more or less comprehensive, with names annexed to them" (book iii. ch. 3).

The fourth book, "On Knowledge," lacks clearness and coherence in its teaching, and is valuable mainly for its details. The chapters in which Locke endeavours to prove the certainty of the existence of God play a sorry figure by the side of those in which he shows that the axioms are not innate, and that, far from being the foundations of knowledge, they are merely abstract summaries of particular observations. He distinguishes two kinds of habitual knowledge: intuitive knowledge, or "by an immediate view," and that resulting from demonstration. The latter is never more than probable, the former more certain.† In a word, the knowledge of

* See also the author's monograph, "The Mother Tongue, Linguistics, and Philology," 1877.

† Not quite so, for Locke, speaking of knowledge resulting from demonstration, as, for instance, the knowledge we may have that "the three angles of a triangle are equal to two right ones," distinctly argues that such knowledge "comes not short of perfect certainty, and is, in effect, true knowledge." He adds however that, owing to the imperfection of our memory, demonstrated knowledge is practically "much more imperfect than intuitive."—*Trans.*

existence does not go beyond particular beings, and we can have no knowledge where we have no ideas; nay, more, our knowledge does not reach so far as our ideas. Thus Locke confines knowledge within such narrow limits that he would regard as too broad the maxim of Protagoras: Man is the measure of all things. Hume will go still farther, and conclude that man knows ideas only, that is to say, sensations, and that the reality escapes him. Locke does not go this length, and does not, like the simple-minded Huet, appeal to Revelation, except in the last necessity. His scepticism is not thorough. Of a moderate, timid, cautious and Christian temperament, and trained in the conviction of human weakness, he doubts in order not to have to deny. But he is sincere. He is equally convinced both that man knows only what enters his understanding, and that this understanding does not know all, cannot know all. This last proposition is overstated, for the unknown is not the unknowable. In fact, man enlarges every day the reach of his senses and the field of his knowledge, and the limits of science may be indefinitely extended. There are no insoluble problems except those that are wrongly stated, and nothing is unknowable except the non-existent. Experience is judge alike of its illusions and its certainties. This is what Locke neither said nor perceived, and yet it is the last expression of his system.

Men and ideas can be appreciated only in connection with their surroundings. The very timidity of Locke was not lacking in boldness. His doctrine partly flowing from the Abderite sophists, from Epicurus, Pyrrho, the Nominalists, Bacon, and Gassendi, guided the whole of the eighteenth century, influenced especially the schools, directed the course of public instruction in England and France down to the sentimental reaction of the eclectics. It held metaphysics in check, and the revolution it created in philosophy was everywhere introduced in the same spirit of moderation, in politics, education, and morals. His "Treatise on Civil Government" (1690) is the true code of all constitutional monarchies, while his "Letters on Toleration" (1689), and his "Reasonableness of Christianity" (1695), reduce to their minimum both religious authority and religion itself. Atheists alone are here outlawed and

deprived of all civil rights. Rousseau, who in the "Contrat Social," carried to their last consequences the just, and especially the false ideas contained in these three works, is also indebted to Locke's "Thoughts concerning Education" (1693) for the greater part of the theories that secured the success of his "Emile."

Locke's more immediate disciples were Shaftesbury (1671-1713), whose education he had superintended, and especially his intimate friend Collins (1676-1729). But while the latter, bolder than his master, drew from sensualism a flat denial of the immaterial, the former inclined towards the current spiritualism, and by his hypothesis of a moral sense, or reflected sense, from which he thought to deduce the *disinterested* principle of virtue, he prepared the way for the moral theories of the Scottish school. Nevertheless Shaftesbury fancied himself a free thinker, as shown by his relations with the unbelieving Toland (1669-1722), who collected and published his works.

Toland's "Christianity not Mysterious" (1695) and his "Panthæisticon" were by no means ineffective weapons against superstition, while his "Letters to Serena" are really valuable, and must always hold their place in a history of materialism or pantheism. But the originality which the man did not lack is missed in his system, and the digressions of an erudition somewhat foreign to true exegesis could not rescue his polemical writings from oblivion. He suffered for the good cause, which he had defended to the best of his abilities.

Collins was of a more methodic mind. A decided determinist, but not a fatalist, as orthodox critics are fond of asserting, for fatalism involves the *caprice* of a god, he maintained in his "Philosophic Inquiry concerning Human Liberty" (1724) that perception, judgment, will, execution, are all necessarily connected together, that there can be no determination without motives, without the choice of one alternative preferred to another, according to the individual temperament and the circumstances. Emphasising a doubtful suggestion of Locke's, he declares that understanding may reside in a subject composed of molecules united together, and yet be nothing more than the result of the organism and of the play of elements,

just as the members possess properties and perform functions of which each of their parts is separately incapable. From the very first Collins had emphatically declared himself against the spiritualistic hypotheses, and even before his daring "Discourse of Free-thinking" (1713) had compelled him to withdraw to Holland till the storm blew over, he had come into collision with the learned and amiable Clarke. Dodwell, one of those Christian dreamers who never seem to fail in England, had hit upon a strange compromise. The soul, he said, was usually mortal; but the principle suffered some exceptions; for could not God, for the sake of his friends, introduce an immortal spirit into this soul, otherwise destined to die? Clarke had gravely refuted this sorry joke, which is revived from time to time under the name of facultative immortality. Collins treated it less ceremoniously, and in a reply to Dodwell (1707) made short work both of immortality and immateriality.

• While rendering full justice to the practical wisdom and virtues of Locke, we must not overlook the undecided and defective character of his system. It had the effect of restricting the domain of philosophy to a remarkable extent. Forsaking the vast vistas opened up by Bacon and Descartes, it concentrated itself in psychology, in the study of the human faculties and of the instruments of knowledge. In defining these it lost the time it might have employed in using them. It delayed the progress of thought with preliminaries of doubtful and secondary efficacy, for man cannot be conceived independently of the universe. And if the intellectual mechanism is the starting-point of all knowledge, it is the objective study of outward things that can alone determine the place of man in the series of organisms and of the Animal Kingdom in nature. Experience, of which Locke no doubt proclaims the sovereignty, cannot be applied with any certainty to phenomena, the conditions of whose being and development it neglects. Hence the philosophic barrenness of the various schools which, either side by side with Locke, or in his wake, have devoted themselves exclusively to psychology, the analysis of the thinking subject. Their discoveries

in the moral and social order have been made by a partial departure from their own method, by the application of objective experience to human activity considered in itself and in its proper sphere. As to their philosophy, it ends in pure negation; it is unable to resist the attacks either of the idealist Berkeley, or of Hume the nihilist. Its consequences have been serious and disastrous, and traces of its influence may everywhere be seen, in England, amongst the modern *associationists*, in France, in the false system of official instruction, in Germany, in the perverted genius of Kant and his followers.

Fortunately mankind troubles himself little about the legitimacy and the limits of knowledge; he is indifferent to *speculation*, and is concerned with science alone. At issue with the universe, he conquers it step by step, embraces, penetrates, decomposes it, classifying all its treasures according as they are acquired, all the more convinced of their reality the more he turns them to account, combining and transforming them into practical inventions. And he moves ever forward, with greater or less rapidity, dragging in his wake the seekers for necessary ideas, the makers of laws, the psychologists, sceptics, and dogmatists. The true educators of humanity are those who daily enlarge the circle of its knowledge; and we know that there was no lack of such in the age of Newton, of Lavoisier, Laplace, Linnæus, Buffon, Jussieu, Lamarck, Voltaire, and Diderot. All these various men of genius; astronomers, physicists, chemists, botanists, zoologists, historians, encyclopædists, while separated by their philosophic views, some being sensualists, eclectics, or rationalists; others materialists, deists, or atheists, are bound together by a common character—the partial or total study of the real world, and posterity, forgetting their foibles, remembers only their benefits. Newton discovered the system of the universe and the relations of the stars. Voltaire threw a vivid light on the diversity of nations and morals, while placing religious fictions in contradiction with themselves and with ascertained truths. Yet the former seriously commented the book of Revelations, and the latter satisfied himself with a formal deism written to order. But such digressions

are of no account. It is enough that both of them, with a hundred others, whether wittingly or not, prepared the advent of objective philosophy.

These considerations will presently be of great assistance to us, and will serve as a guiding thought through the dense forest of philosophic history in the eighteenth century. Here it would be impossible to thread our way without opening up two or three main routes intersecting the 'maze of innumerable byways, and converging directly on the principal highways of modern thought. However rich the seventeenth century may have been in men of genius and in excellent artists, its intellectual life had experienced a considerable abatement, and its philosophic work is centred in a dozen great names. But the eighteenth century was rivalled in fecundity by the sixteenth and nineteenth alone. Schools, groups, and sub-groups, every shade of opinion, are now multiplied, mingled together, and brought into continued antagonism. According to the different standpoints one might choose to take, there might very well be established from twenty to thirty subdivisions in this busy world of thought: opponents and champions of orthodox catholicity, or of a more or less rational christianity; deists and atheists; moderate sensualists; eclectic psychologists; vulgar spiritualists; sentimentalists; utopian school; idealists; sceptics; metaphysicians and naturalists; theosophists; political economists; moralists and politicians; or, again, the direct school of Locke in England and France; Scottish school; Berlin Academy; the Encyclopædia. Observe, also, that behind all these categories there are individual temperaments, and mutual interchanges of ideas; that the groups are not rigidly fixed and invariable; that certain individuals may, without inconsistency, belong to none or to all, or to the greater part, as, for instance, Voltaire.

The only means of making one's way through this labyrinth is by first of all laying down a broad line of demarcation between those who confine themselves to psychology, whether sensualists or rationalists, and those who deal with concrete reality, whether they study it as a whole, or devote themselves to some special branch, but without isolating man from the universe. We shall thus have,

on the one hand, those who linger at the gate of science, from its threshold pretending to dictate its laws; on the other, those who patiently follow it, verifying its successive gains and their consequences. Those who cannot be altogether grouped with one or other of these great categories, while always taking account of individual varieties, we shall include in the class towards which they most incline, with which they may have been most intimately associated. We shall pass over the classic spiritualists of the Cudworth and Clarke* type, and visionaries and mystics such as Swedenborg,† Saint Martin, or Lavater,‡ or at least the mystic and insane elements in these writers. The one have nothing to tell us that we do not already know; the others have nothing but dreams to relate, for which we cannot spare time.

§ 3.—*English Scepticism and Eclecticism: Berkeley, Hume—The Scottish School.*

In order properly to understand the audacity of English scepticism and the parallel timidity of the Scottish school, account must be taken, on the one hand, of the positive and practical spirit which is the distinctive feature of the Anglo-Saxon character; on the other, of the intellectual confusion brought about by the religious struggles. In substituting the worship of a book for the authority of a tradition, Protestantism did not emancipate human thought. If it burst the debasing chains of Catholic unity, it respected and even strengthened the fundamental bond of Christianity. No doubt it broke down parting walls, and then invited mankind to inspect the ruins; but it added solidity to the enlarged prison enclosure, the very part that should have, in the first instance, been levelled to the ground. And here it should be carefully noted that it was the Catholic nations which effected the widest breaches in this outer wall; amongst them have appeared the

* 1675-1729. Pretended proofs of the existence of God.

† 1688-1772. At first a naturalist; demented in 1745.

‡ 1741-1801. A Physiognomist.

most absolutely liberal minds. But the anomaly is only apparent. Catholics have always in view the main obstacle, the religious sentiment whence flows theocracy; they do not separate effect from cause, whereas Protestants have undermined the one without touching the other. "*Less religion*," Littré has said, "would matter little, for the *least religion* would be only all the more tenacious." In the Catholic world pure deism is but the pseudonym of unbelief; in the reformed world, amongst the boldest dissenters, it is the last article of faith, the residuum, the final refuge of anthropomorphism, otherwise called religious sentiment. Often divines, at times laymen, but all alike Protestants and Biblical Christians, the English philosophers speak always of God, of Christ, of revealed truth with bated breath, with the conventional devout nasal twang. When they do not place religion above reason, their main efforts are directed towards reconciling them, showing their identity. Even those who recognise the contingency of the idea of the Deity, who refer all ideas and all knowledge to sensation, accept at heart certain indisputable, revealed principles, which are the foundation of ethics and the rule of life. They may seem occasionally to forget, and even to deny them by implication, but it is easy to see that they are still beset, *possessed* by them. And as to those who openly subordinate philosophy to faith, they of course never take account of the damaging effects their pious doubts have on religion. Berkeley, for instance, fails to perceive that his absolute idealism ends in the most radical and barren nihilism. The depth and the reach of his paradoxical scepticism have otherwise been strangely exaggerated.

Berkeley (1684-1753) is above all the zealous and combative clergyman. He crosses the Atlantic to found an evangelical colony in America; he discharges the episcopal functions for twenty years at Cloyne, in the south of Ireland; while writing on "*The Principles of Human Knowledge*," the "*Dialogues of Hylas and Philonous*," and "*Alciphron, or the minute Philosopher*," his one object is the refutation of atheism and scepticism. In the "*Alciphron*" he argues especially against the opinion of Mandeville that virtue is an artificial product of policy and vanity.

But this Christian believer is also a learned physicist, and as such, a sensualist of the school of Locke. How then will he escape from the authority of the senses? How preserve the claims of metaphysics and faith? The misunderstood theory of representative ideas will supply him with the indispensable means. To the outward reality, which has need of intermediate channels to reach the soul, he hastens to oppose the existence of the mind, which realises itself by an inward perception, direct and immediate. The mind therefore is alone indubitable, while as to the universe, nothing guarantees the trustworthiness of the intermediate, of the images revealing it to the understanding. Spirit, which is immaterial, alone exists, and the representation of sensible things is but a mode of its activity. But this spirit, this *ego*, affirms itself alone; it recognises no other spirits, no other *egos* exterior and similar to itself. And here it should be observed that in this case we have still less the right to suppose a god or to believe in revealed truths. In suppressing the real, Berkeley does not save the ideal world, and his scepticism ends in a *cul-de-sac*. Altogether his dialectics can scarcely be dealt with seriously, and his empty paradox is refuted by the very words in which it is expressed. "There are truths," he says, "so easy to grasp, that we need but open our eyes to perceive them." And of these truths, to him one of the most important seems to be that which tells us that the earth and all that adorns its bosom—in a word, all the bodies, the aggregate of which compose this magnificent universe, have no existence outside of our minds. But it may be asked: What right has this idealist to *open his eyes*? And how can he consistently speak of *bodies, aggregates, a magnificent universe*, none of which things exist?

Very different is the drift of sensualistic scepticism. Its negation of the *sensuous* reality is superfluous; but its destruction of the pretended metaphysical truth is decisive and final. It matters little that it reduces certainty to probability, substance to the phenomenal. If appearance gives a secure foundation to thought and action, it becomes equivalent to reality, the rest is a mere question of words. When it has been thoroughly reiterated that man is the measure of all things, that all is relative to man,

that whatever escapes the grasp of our senses, of experiment, is null and void, we begin to perceive that it cannot be otherwise, that knowledge cannot emancipate itself from the conditions of the organism. Whatever appears is, provided it appear constantly; but whatever disappears constantly before observation, has no existence. In respect of all that is known, knowledge may assuredly be either affirmative or negative.

The unknown remains the object of research. But for doubt there can be no place, unless it take refuge in a pretended *unknownable*, which for us could have no existence, since it would be placed beyond our natural or acquired means of knowledge. Accordingly the famous fundamental doubt from Pyrrho to David Hume has never prevented man from advancing, the stars from revolving, science from expanding; it has never shaken the double certainty of the existence of the individual, and of the universe encompassing him. But it has always been an excellent weapon against premature or false hypotheses. Where doubt stops, experiment ends; where the one abstains, the other concludes. Of doubt it may be said that if it shrinks from victory it is because its triumph is its death. From the moment that it proves it ceases to be. All scepticism resolves itself into affirmation or negation. The greatest service it can do is to suppress itself. This real benefit offices its imaginary abuses.

David Hume (1711–1776), although in imitation of Locke confining himself to the preliminaries, as we call the question of the origin of knowledge, although restricting himself to the subjective study of human thought, was one of the greatest promoters of modern philosophy. It would be doing his system an injustice to represent it as the sequel and counterpart of Berkeley's paradox. The sceptical element in him is rather the form, the bent of mind; he doubts oftener than he doubts, and of experiment he never doubts. Of him it has been said, with a certain touch of childish contempt, that he was in the eighteenth century the leader of *empiricism*—a glorious title; because empiricism, another name for the experimental method, is the first condition of all science.

Born in 1711, David Hume began his career while still young

(1738), with a "Treatise on Human Nature," afterwards recast in his "Enquiry concerning the Human Understanding." His success was slow in coming; and his "Moral Essays," "Political Discourses," and "Enquiry concerning the Principles of Morals," contributed less to his reputation than his historical writings—"History of England, from the accession of James I. to the Revolution," "History of the House of Tudor," &c. But from about the year 1760 his doctrines, opposed in Scotland by Thomas Reid, became popular in France, and excited the enthusiasm of all Europe. He himself received a triumphant reception in Paris; and but for his unfortunate quarrel with Rousseau (1769), he might possibly have passed his last happy years in the midst of the Encyclopædists. As it was, his associations with Adam Smith, Ferguson, Blair, and Home induced him to return to Edinburgh—centre of that Scottish school composed exclusively of his opponents and admirers. Here he died almost suddenly (1776), but with the serenity of a philosopher, leaving unfinished his "Dialogues concerning Natural Religion."

The most eloquent tribute to Hume's influence is the number of his translators,* commentators, and adversaries. In England his bold theories were the sole *raison d'être* of the psychology of common sense; the necessity of refuting his views bringing into the field Thomas Reid, and with him Warburton, Beattie, Oswald, Hurd, Tytler, Price, Douglas, and others. Religion, sentiment, and metaphysics became leagued together against the common danger. Germany joined on the same side with Merian of the Berlin Academy, first French translator of the "Essays," Jacobi, Tetens, Abel, Feder, Ulrich, Reimarus, and the eclectic Mendelssohn. Not that Hume taught anything positively new, anything not already found in Arcesilaus, Aenesidemus, Charron, Hobbes, Locke, and even Descartes himself. He did no more than turn to his own purposes arguments already well known. But these he stamped with such an individual impress, knitting them together with such

* An excellent French translation of his "Treatise on Human Nature" and his "Essays," in one vol., by MM. Renouvier and Pillon, has just appeared in Paris.

an irresistible logic, and in a form so precise, so adapted to the spirit of the times, that he created a lively commotion in the whole philosophic hive. Not the least of his claims to celebrity was the circumstance that he half aroused Kant himself "from the dogmatic sleep."

What we have said of Locke, and will have to repeat of Condillac, dispenses with the necessity of dwelling on Hume's psychology. It admits nothing in the mind except impressions and their relations. All ideas proceed from sensation; they become associated together in virtue of their *affinities* or *contrasts*, of the *contiguity* of time and place, of the habit which supplies us with our conceptions of cause and substance. The human individual is nothing but "a bundle" of perceptions; the outward world merely the unknown object of our sensations; cause, a relation only, confirmed by frequent repetition, between facts constantly succeeding each other, while nothing but an inveterate illusion lurks under the terms *efficient* and *final* causes.

There are no necessary ideas or facts; certainty is reduced to probability; if the deductions of the mathematical sciences are certain it is because they are already implied beforehand in the abstractions on which they are founded. Once separated from the sensuous phenomena suggesting them, the ideas of number and size become combined, analysed, subdivided, and recomposed indefinitely, and all their products are capable of demonstration. But it does not follow that they answer to any concrete reality, or at least to a reality concerning which we may assert anything. Objective science, again, is but a nomenclature of phenomena. Hume's opinion on science has thus been summarised by Bartholomew: "Science is entitled to our confidence on two conditions only—all its elements must bear the stamp of necessity and universality. But our ideas being the effect of variable impressions or of pure habit, present nothing universal or necessary. Therefore there is no absolutely true science. Our knowledge is mere belief and probability."

His treatment of the idea of cause is the triumph of Hume, and the greatest service he has rendered to the human understanding.

Can reason, he asks, assert anything on the relation of causality? No; because it cannot get out of itself nor rise above an identical proposition—the affirmation of the phenomenon. Experience no doubt teaches us that certain facts are usually accompanied by certain others; but it does not justify us in saying such a fact is the product of such another, and will always flow from it. We are accustomed to see one thing succeed another, and we fancy that what follows depends on what went before. To the antecedent we attribute a *force*, a *power*, of which what ensues would be the exercise or manifestation. We assume a bond of dependence between the antecedent and the consequent. It is objected that reflection (a consequence of the association of ideas) leads us to think that we have within ourselves a force by means of which we make the bodily organs obedient to the will of the mind; but as we know not by what means the mind acts on the body, have we any right to conclude that the mind is a real force? Reduced to the test of experience, we know only that there is a frequent concomitance, or succession of the same phenomena. To infer from this the existence of a necessary connection, of a power and a force, in a word, of a cause, is to reason viciously, to assume too much. The idea of a connection of this sort is the result of habit. Nothing justifies, *a priori*, the idea of cause, and, *a posteriori*, it is merely a habit.

There is nothing to be alarmed at in this somewhat sweeping scepticism. It is fatal to entities, to verbal *essences* alone; it does not suppress the ideas that it explains; it does no more nor less than teach us how to employ them with full knowledge of their nature. But it is easy to imagine the consternation caused in the camp of the simpletons by a man who wrote that we form the idea of God by giving an unlimited expansion to the qualities of wisdom and beneficence which we observe in ourselves; that those who pretend there exists but one ever-active cause, to which must be referred the motion of the universe, and that this cause is God, explain the unknown by the equally unknown. And is it more difficult to conceive of motion as proceeding from a concussion than from a volition? The most antagonistic religions rely all alike on

witnesses, and for that very reason the force of all these witnesses is destroyed.

Hume, they cry out, shakes reality, suppresses the *ego*, the spontaneity of the *ego*, reason! He destroys science, extirpates substance whether material or immaterial; forces, power, virtualities! Thus exclaim in every tone those who believe still more in the metaphysical reality of irreducible beings than in the existence of the outward world. There is an end of Reid's "common sense," of Rousseau's or Jacobi's "sentiment," of the dynamism of the Leibniz school. Hence that life-and-death struggle, which is not yet over, and in which Hume's scepticism has perished, though not the negations it involves. These are in the first place confirmed by experience, and in the second it is simply that the question has not yet been thoroughly probed. Limiting themselves to idle dialectic exercises, his opponents have merely placed Hume in contradiction with himself. The process was so far fair and the task easy enough.

In fact Hume is by no means as bold as he would wish to be, and he happens to share in the very terror he inspires. He is beguiled by his own scepticism, at least till the time when he will come to regard it as an exercise and a verbal strife. But during the greater part of his life he also believed with others that in defining substance, will, reason, he destroyed them. And as for his own part he firmly believed in outward reality and human activity, he recoiled from such total negation. In order to save certainties that he had in no way shaken, he thought it necessary, in his treatise on "The Principles," at least to admit an inherent disposition in man, a tendency that inclines us to take similar for identical representations. And although referring this *invincible belief* to the imagination swayed by habit, he seems to constitute it a distinct criterion of experience. So also in his moral treatises he invokes an instinct which belies habit, a special sense whose object is the beautiful and the good. Morals, he says, are not the object of the understanding, but of sentiment; the good like the beautiful is felt; the good is the moral beautiful; there is a moral sense or instinct. This phraseology, borrowed from Hutcheson, is at once superfluous and false. In point of fact, sentiment is redu-

cible to sensation as its source, and instinct, being nothing more than the application of an organism to its conditions of existence, contains nothing that may not be explained by habit and inheritance. The sensuous impressions account for the moral just as well as for intellectual ideas. It is Hume and not his doctrine that is self-contradictory; it is not the latter but the former who needlessly exposes himself to the attacks of the metaphysicians. But their triumph is too easily won. The moral sense, benevolence, sympathy, usefulness, are in morals equivalent principles, all equally reducible to the necessities revealed to the organism by sensation. But the metaphysicians eagerly seized on a concession which the sensualists themselves thought it necessary to make to current opinion. But these are mere academical wranglings!—inconsequences leading to no further issues! Floods of ink have been wasted on the question; but have they succeeded in clouding it? Sensation still governs man, and interest rules the world.

Before Hume's scepticism had determined the mission of the excellent Thomas Reid, the Irishman Francis Hutcheson (1694—1747) had set up in Glasgow that philosophy of the mean truths, destined later on to influence Royer-Collard and the modern French Doctrinaires. In psychology Hutcheson still showed himself the faithful disciple of Locke; but his invention of the *internal sense*, by which he hoped to escape from the destructive logic of Hobbes, opened the door for a *prudent* and *respectable* spiritualism. Nurtured on Butler's sermons and Christian sops, he pretended to found personal and religious morals, not on necessity, interest, right, and justice, but, with Cumberland and Fénelon, on love and benevolence. We do not question the legitimate share to which these sentiments are entitled in the direction of human actions; but they are otherwise of a secondary and derivative character. Hutcheson neglected to decompose them into their simple elements, social contact, sexual attraction, temperament, circumstances. He made them the immediate manifestation of an inward or moral sense, characteristic of man, or at least rarely bestowed on animals. In these superficial views there is at the same time a relative truth which may serve as the foundation for a very acceptable moral

system. Hutcheson is one of those moderate minds who avoid great errors. In politics he seeks, like a good English citizen, to combine the interests of the monarchy with those of the aristocracy and the people, and he does not overlook the fact that from the latter proceeds all power. In religion he is a christian deist, but he is unmoved by the metaphysical proofs, and depends entirely on the logical illusion of final causes; and it must be allowed that for a mind earnestly in search of the most likely theory, the order of the universe, if it existed, would be the only at all plausible proof of the existence of a God.

Home (1696-1782), and Adam Smith (1723-1790), are moralists of the same school. The latter in his highly estimable "Theory of the Moral Sentiments" (1759), for Hutcheson's *benevolence* substitutes *sympathy*, an equally secondary principle which assumes preliminary contact and comparison. His "Inquiry into the Nature and Causes of the Wealth of Nations" (1776) constitutes his chief title to fame. After Voltaire, but with an abundance of proof compatible only with a special work, he establishes the maxim that agriculture, industry, trade, threefold source of wealth, are, each on the same ground, so many forms of human activity, of *labour*, whence flows all civilisation. *Labour* is pre-eminently the social agent, the producer of the *useful*, consequently nothing should impede it. The duty of the State is to guarantee personal liberty. Power is but a delegation agreed to in the interest of labour, of the useful, of the individual. The reduction of the State to its minimum, the ideal of all sound statecraft, but still grudgingly accepted in the old European world, has more far-reaching consequences than the Scottish doctrine. By this simple and true conception, Adam Smith, founder of political economy, rises to the height of real genius, and makes us all the more regret the loss of the treatise on "Civil and Political Right," which he had undertaken on the plan of Montesquieu. Adam Smith had taught in Glasgow from 1751 to 1763, and from 1748 had been intimately associated with Home. In France (1764-1766) he had studied Turgot and the economist

Quesney, whose exclusive system he was destined to destroy or rather to enlarge.

While Smith, quitting metaphysical speculation and satisfied with a summary psychology, applies his powerful faculties to the study of the social relations; the honest divine, Thomas Reid, the typical Scotchman, occupying a position between Locke and Descartes in the moderate field of common sense, devotes himself with a sedulous and scrupulous care to subjective psychology. He wished to make it "an experimental science, like natural history," a laudable ambition, but condemned to failure by his early training and prejudices. He believed *à priori* in what he wished to demonstrate. Hence the defect of his system—inward observation, and the weakness of his criterion—common sense. The one may supply information on the actual state of the understanding, not on its origin and nature; the other, a shifting test of acquired knowledge and current error, may, with all due reserve, serve as a rule for our ordinary actions, not as a measure of truth; and in no way can it supply the place of experience. Of what use was common sense to Copernicus, Galileo, or Newton?

Reid (1710–1795), professor in Aberdeen from 1752 to 1763, and in Glasgow from 1764 to 1786, is connected with Hutcheson through his first master, Turnbull. But he was wavering between Locke and Berkeley and already inclining to idealism, when the apparent nihilism of Hume (1739) raised his alarm to the highest pitch. Here are two daring thinkers, who, by analogous arguments, destroy, one the reality of the outward, the other that of the moral world; nay, more, the latter doubts whether sensation corresponds with its object. Is all then illusion? By no means; for am I not certain that I exist, that other men exist, that animals, stones, the earth, the stars exist, just as well as I do? Does not common sense tell me so? Thereupon, leaving Berkeley and his paradoxes, Reid devotes all his energies to Hume. Powerful and gallant adversary! Only to attack scepticism is to lose one's time. The best course is to listen and pass on to the serious business of life. Such was the course pursued by Disraeli.

Hume holds that he doubts ; Reid holds that he believes. But Reid will no more convince Hume than will Hume his readers and admirers that Hume remains himself unconvinced ; for Hume knows well enough, and all the world knows it also, that his *probability* is equivalent to what is usually called certainty. But had Reid reasoned in this way we would not have possessed the "Inquiry into the Human Mind" (1763), nor the "Essays on the Intellectual Faculties" (1785), nor the "Essays on the Active Powers of Man" (1788). Granted ; but we would also have been spared the philosophy of Royer-Collard and modern eclecticism, and our task would have been rendered all the lighter.

Reid, as stated, begins by asserting that the *representative* ideas, which he takes for real entities, intermediate between the object to be perceived and the subject perceiving it, are not the sole object of knowledge ; that perception is direct and indubitable ; that it is accompanied by natural judgments, whence proceed our ideas ; that our knowledge of the outward world and of ourselves is anterior to the comparative judgments suggested by the association of ideas, and which give rise to abstract ideas ; that there are *necessary* ideas, and that, as they can derive neither from sensation nor the phenomenon, both equally variable and contingent, such ideas imply the existence of a particular being who possesses and emits them ; that this being is the *ego*.

Hume would be very little embarrassed by such reasoning. What a cloud of words, where it would have sufficed to state that sensation reveals to us at once the universe and ourselves, that it implies at once both one and the other, and that this double certainty, confirmed thousands and thousands of times, irresistibly directs our thoughts and actions ! But Reid prefers to inquire : What, *in its essence*, is the reality of this being which we call *I* ? But even so he might have found it without going so far. The being we call *I* is man, a living organism. Why has this organism, like all its fellows, the consciousness of its actual unity ? As well ask why the combination of fifteen or sixteen simple bodies rather than of twenty or thirty others produces the phenomenon, the state which we call life.

Reid's moral system is not more profound than his 'psychology. He defines, with praiseworthy care, instinct, habit, appetite, desire, the affections, and of course, interest and duty; but he misses the nexus that connects together these various manifestations of our individual and social existence. In the same way he judiciously enough divides the principles of our actions into the mechanical, animal, and rational; but he fails to perceive that the second are conditioned by the first, and the third by the second. His experimental tendencies are hampered by the common sense of his age, which is no longer the common sense of ours; but they at least save him from lofty metaphysical speculations. His reason shrinks from encroaching on the domain of faith, and at the very threshold of theodicy stops short with the final causes. Although deists and sincere Christians, the orthodox thinkers of the Scottish school, Beattie (1735-1803), Oswald (1766), Dugald Stewart above all, do not diverge from this relative prudence.

Dugald Stewart (1753-1828) is the foremost disciple and continuator of Reid. Within the narrow circle of eclectic psychology, his analysis of memory and the association of ideas is not lacking in penetration. But the extreme favour he enjoys in the school of Cousin dispenses us from dwelling on his merits. Our moderate esteem would in any case be accused of coldness. It will therefore be more to the purpose to devote a few words to two or three opponents, who gave proof of some originality.

Ferguson (1724-1816) professed philosophy in Edinburgh from 1759 to 1785, consequently before Dugald Stewart. An ex-military chaplain, teacher, traveller, historian, and diplomatist, he propounded many ingenious and truthful views on ethics and general politics. According to him, human actions are explained by three principles or laws: preservation, social feeling, and progress. Examining the origin of societies, he endeavours to refute the theory of Hobbes on the state of war, and that of Rousseau on the state of nature. The law of societies is progress, and their object a political form adapted to their wants. He shows with great clearness that the state of nature is everywhere, quite as much amongst civilised men as amongst savages. Whether in France, he observes,

at the Cape, or the Straits of Magellan, man everywhere exerts his faculties; all situations are equally natural. In psychology, Ferguson remains faithful to Bacon and to Locke—is a thorough sensualist.

The most radical of the Scottish school is Thomas Brown (1778–1820), colleague and successor of Dugald Stewart in Edinburgh. Seldom has a disciple more decidedly contradicted the teachings of his master. Although admitting a natural theology, he does not rest satisfied with mere platitudes, and his “Psychology of the Human Understanding” (1820) and his posthumous “Lectures on the Philosophy of the Human Mind” (1822) abound in clear and trenchant language. “In all science,” he writes, “the only question ever is, to observe the relations of coexistence and those of succession.” With Hume, Condillac, and Locke, he declares that “will, on which so many extravagances have been written, is nothing but a desire with a belief that effect will follow.” He censures Reid’s timidity and upsets his illusory assertions. The pretended *direct perception* is a mere expression, a tautology that explains nothing. The *inward sense* also means nothing more than the fact of sensation and of the association of ideas. Reid was entirely mistaken respecting the *representative ideas* of Locke and Hume. These regarded the expression merely as a name for sensible impressions, while Reid, in order to refute them, converts it into an entity analogous to those effluvia or subtle *membranes* of Lucretius, which hover between bodies and our senses. Lastly, Reid is practically equivalent to Hume. The one declares that we must believe in the reality of the outward world, but without proving it; the other that it cannot be proved, but must be believed all the same.

Hamilton, the last of the Scottish school, was born in 1788, and, as he survived till 1856, he lived long enough to admire the philosophy of Cousin. By dint of continually oscillating between Reid and Kant he occasionally stumbled on some just and even profound remarks, as, for instance: The ego is the sum total of the states of which I am conscious; Conscience is not a faculty, but an essential form of all the acts of the soul, meaning the thinking brain. All

knowledge is relative ; Philosophy, if it is not absurd, is the science of the *conditioned* (of the finite). He is entitled to our thanks for having endeavoured "to exorcise the phantom of the absolute." The absolute and the infinite are contradictory ; strictly speaking they become associated in the *unconditional* (which has no existence) ; all cause being relative to its effects, none can be either infinite, since it is limited by its effects, or absolute, since it is distinct from its effects and from other causes. Nevertheless, Hamilton is a deist, though in a vague sense ; he would believe in an *unknown* God, arguing that the field of our faith may be wider than that of our knowledge.

But logic was the great passion of this remarkable and distinguished thinker. He attempted to recast Aristotle's "Organon," and he reduced induction to syllogistic form. Still, his "Lectures on Logic," in spite of a thousand subtleties, do not justify his vast pretensions.

§ 4.—*Free Thought in the Eighteenth Century: Condillac's Sensualism—Voltaire's Deism—Diderot's Naturalism—Materialism of Lamettrie and Holbach—The Encyclopædia and Science in the Eighteenth Century—Condorcet's Historic Conceptions—Rousseau's Sentimental Reaction.*

While the Scottish school, timid daughter of Bacon and Locke, sought to reconcile the three principles of experience, reason, and faith, hoping to find in *common sense* a solid foundation for psychology and ethics, Locke's French disciples pursued the same object in a more liberal spirit, but without avoiding the same inconsistencies. Voltaire himself, whose "Lettres Philosophiques" (1735) popularised in France the doctrines of Locke, and still more Montesquieu, whose "Lettres Persanes" (1721) gave promise of a boldness of thought not afterwards realised, were never able entirely to release themselves from the superficial triflings of rationalism. So difficult is it to shake off inveterate prejudice. But through the universality of their genius, Voltaire and

Montesquieu belong to another group, and we cannot just yet quit the narrow field of psychology and ethics.

The most distinguished exponent of the sensualist psychology in France is Condillac (1715-1780). There is nothing in his writings that does not flow from Locke. But if to clearness of expression and skilful exposition he could have added the merit of priority, the pupil would far outshine the master. His "Essay on the Origin of Knowledge" (1746) is scarcely more than a mere methodic exposition of Locke's "Treatise on the Understanding," but by continually cultivating and extending the inheritance he ultimately made it his own. His "Treatise on Sensation" (1754), his "Grammar," "Logic" (1781), and posthumous "Langue des Calculs" (1798) are marked by a thoroughly personal impress. His originality is now conspicuous no longer in the form alone, but also in the substance.

By the side of sensation, and as a second principle of knowledge, Locke had placed reflection, an act of the mind taking cognisance of its faculties. This was an involuntary concession to the spiritualists, for it implied the existence of the soul; and reflection, thus raised to the dignity of an almost independent cause, became a faculty virtually pre-existing to sensation. Condillac, like Hume, felt this flaw in the theory, and he removed it. In his classical "Treatise on the Sensations," reflection falls into its proper place, as one of the stages traversed by sensation before ending in reason.

To throw light on the sensuous origin of human knowledge, Condillac has recourse to a famous hypothesis, which the assumed contempt of the rationalists renders neither less ingenious nor less convincing. If, instead of a statue animated by a spirit still devoid of all ideas, he had successively presented the inferior organisms, deprived, some of taste or smell, others of sight or hearing, and shown that thought advances in the living series according as the sensitive apparatus is perfected, his demonstration would have been well-nigh faultless. But being more of a psychologist than a physiologist, he had neither the means nor the idea of applying natural history to the study of man. He might at most have been able to make use of the child, and appeal to the patent fact of the

successive development of the senses and of the ideas derived from them. But in the actual state of science his assumption was perfectly legitimate.

Here then we have a man not only deaf and dumb, but blind, without smell, taste, or even the sense of touch, but still living and provided with all the external organs, which have not yet discharged their functions. Suddenly the nostrils are opened and he experiences the sense of smell, awakening the corresponding idea; then follow taste, hearing, touch, and sight; and with each successive sensation the corresponding ideas are formed, preserved, associated, and compared. Condillac wished to ascend from the most limited to the most comprehensive and general of the senses; but as a physiologist he would in the first instance have evoked that of touch, implied by all the others. But in his hypothesis and for the object he has in view, the likelihood of the details is of little moment. Enough for his purpose that sensation clearly appears as the *conditio sine qua non* of all ideas, whether partial or general. None of the famous innate or necessary truths escape from this law. The idea of the infinite, of the perfect, of substance and being, all alike imply a preliminary comparison, or at least simultaneous between dimensions and forms, consequently between bodies.

All the transformations of sensation are disposed in two classes, which may be distinguished by abstraction, and which, starting from the same point, like *tabula rasa*, never cease to coalesce, to unite, to clash, and so ultimately weave that unbroken and indefinite piece of tapestry called the human person, the conscience, the *ego*. The faculties of the intellect and of the affections, understanding and will, are formed together, and advance on two coincident or parallel lines, so that the history of their evolution might be disposed on two analogous columns. Sensation, Attention (predominance of a particular sensation), Memory, Comparison (and reflection), Judgment, Reason, to which stages of the understanding correspond those of the will: Sensation, Attention (pleasure and pain), Memory, Comparison (desire or fear), Passion, Will. Nor is this by any means an artificial classification, but the

very order in which the mental and moral states and acts succeed each other. "If we consider that to remember, to compare, to judge, to discern, to imagine, to be surprised, to have abstract ideas, ideas of number and duration, to know general and particular truths, are but the different ways of being attentive; that to have passions, to love, hate, hope, fear, and will, are but different forms of desire; that, lastly, to be attentive and to desire are in their origin nothing but sensation, we shall conclude that sensation embraces all the faculties of the soul. . . . The *ego* of each individual is but the sum total of the sensations he experiences, or of those revived by memory; it is at once the conscience of what he is, and the recollection of what he has been."

Locke had already been struck by the indispensable part played by language in acquiring and fixing ideas. In his turn Condillac tells us that words are "signs which beget reflection, abstraction, generalisation, reason; without speech the mind could not surpass that of animals." Without language there can be no science; and so true is this that "a science is merely a well-developed language." It would be in vain to enlarge upon this summary definition; the more we probe it, the more we shall find it solid and conclusive. All knowledge is reduced to a clearly-arranged nomenclature, a principle developed by Condillac in his "Course of Studies," prepared for the Prince of Parma; and in his "Langue des Calculs" he has applied it to the art of writing, of reasoning, and of thinking. But he has not sufficiently perceived that the principle can give rise only to special languages (terminologies), invented offhand for new sciences, and which will always stand apart from the general speech elaborated in the course of ages. Still, even though he no more suspected than did Plato or Aristotle the later discoveries of philological analysis, he gave expression to a number of just ideas on the origin and development of speech, which for him is a progressive invention of man.

Condillac escapes neither from the spiritualism, the scepticism, nor the religious sentiment of his master. He was a psychologist and a divine, and, having studied thought alone, he could write, just as Berkeley had done: "What we perceive is always our own

thought." Nurtured in metaphysics, he placed the seat of sensation, not in the organism, but in the soul; and a deist by profession, no less than by habit, he wasted a number of pages in establishing the existence of the Supreme Being.

These compromises with the old prejudices have contributed equally with the agreement of sensualist psychology with the natural sciences, to popularise Condillac's teaching, and cause it to be adopted in official seats of learning. Similar compromises occur amongst most of his contemporaries and successors to such an extent that, in the case, for instance, of Laromiguière, they result in perverting and reducing to a diluted spiritualism the very basis of the doctrine. Cabanis (1757-1808), Mirabeau's physician, friend of Condorcet, and author of the materialist, sensualist, and vitalist "Treatise on the Physical and Moral Nature of Man," returns, towards the close of his life, to a vague deism, and, in a letter to Fauriel on the "First Causes," he regards the universe as the work of a "willing intelligence." In this school of philosophy, reduced to ideology, the most consistent thinker besides Volney was Destutt de Tracy, who was also its last, though not its least, exponent.

Bacon, Descartes, Gassendi, Hobbes, Spinoza, Leibnitz, had embraced the whole field of philosophy, as conceived by Anaximander, Democritus, Aristotle, or Epicurus. After them, the mind of man, wearied with their vast syntheses, repelled especially by the metaphysical vagaries of Descartes, had confined itself to the study of its own faculties. This special tendency has not been unprofitable either to psychology, practical ethics, or sociology. The more or less profound analysis of Locke, Condillac, Reid himself, and the sceptical inquiry of Hume may be regarded as academical exercises useful to human thought. But such exercises with closed doors, within the narrow circle of the inward tribunal, and by resembling the labours of a caged squirrel. What would they avail if man were not resolved to make outward use of the forces he may have verified and developed within him?

It is undesirable that man be for any length of time isolated from his surroundings. While he is meditating on the origin and extent of his knowledge, the world and mankind continue their

evolution ; experiment enlarges its domain. Newton determines the exact relations connecting the solar system together and the physical conditions regulating the existence of things and of beings on the surface of the terrestrial globe ; Linnæus classifies the living and vegetable series ; the imagination of Tellamed and the grand hypotheses of Buffon prepare the way for geology ; chemistry detects the simple bodies or substances hitherto irreducible, which are comprised under the general term "matter," and of which the universe is composed ; and behind the shattered idea of a divine entity there is revealed the reality of nature. And if nature and its laws, whose empire has now been ushered in, still retain a sort of metaphysical and religious virtue, it is owing to a state of mind the result of long habit, created by the abuse of rational anthropomorphism, now at last superseded. But they at least correspond to the sequence of events revealed by science.

Thus philosophy, for ages perverted by the intrusion of oriental mysticism, at last takes conscience of herself. She resumes the course already completed by ancient thought, progressing slowly, laboriously, and over accumulated obstacles, towards the same goal, the objective conception of the universe. She has had her Democritus, her Heraclitus, Anaxagoras, Plato, Aristotle and Pyrrho, and now she produces her Epicurus. Nor is this a recoil, but a vast stride in advance, brought about by the natural development of the human mind, which necessarily proceeds from experiment to hypothesis and from hypothesis to experiment. The ancient Epicurus could only guess ; his modern successors will be able to prove. Her labours, though more complex and protracted, will be all the more certain in their results. Continually thwarted by the troublesome attacks of enfeebled metaphysics and religions, she will recover more rapidly from apparent defeats, and will never again be subjected to eclipses and lapses such as already brought about a darkness of ten centuries. Diderot, to mention but one name, was born in 1709, and in 1860, Lange, an idealist, will show, with all the restrictions entailed by the opposite theory, that all the real conquests of man flow from experience, from the objective conception of the universe ; in a word, from scientific materialism.

Not that all the thinkers following each other in this section wittingly concurred towards the final result, but they all help to bring it about. Above the discrepancies, hesitations, fears, and revolts, easily accounted for by differences of education and temperaments, there reigns a common character, the strength and boast of the eighteenth century, that tendency we have already pointed out to solve by natural and constant laws derived from facts the problems hitherto referred to the tribunal of reason. This is what gives unity to their labours, a unity which enables us to disregard or treat as of secondary importance all individual exceptions.

But the conception of the universe is one-half only of philosophy. Experience will now be applied to man also, who will be studied in his organism by Boerhaave, La Mettrie, Bordeu, Cabanis, Bichat, Broussais, all following in the footsteps of Descartes and Harvey. Vico, Montesquieu, Voltaire, Condorcet, Volney, without forgetting the special services of learning and jurisprudence, to the Christian paradox brilliantly amplified by Bossuet will oppose the natural history of man, unfolding the shifting scene of his morals, institutions, and destinies. Vico, whose name ought to have appeared earlier, as he was born in 1668, and died in 1744 at Naples, which place he never quitted, endeavoured to do for the accidents of political and social life what Bacon tried to effect in the physical order. From such phenomena he drew certain general laws intended to regulate history, and especially to guide the historian. Patient studies of right and religions, beliefs, doctrines, and the course of history brought him to the conclusion that man ever revolves in a fated circle, in which the same causes produce the same effects indefinitely. He is biased by a logical idealism which captivated Michelet, but which diverts him to vain speculations on our *common nature* and the parallel development of all races. His *revolving* system is contradicted by the very book in which he expounds the successive phases of civilisation. It is difficult to accept his conclusion that a wise monarchy or conquest by a better people are the only remedies against corruption. Vico makes no appeal to human perfectibility, to indefinite progress. Still the "New Science" (1725), especially in the chapter

devoted to *the course followed by the history of nations*, betrays an enlightened and shrewd intellect, and Vico may on the whole be taken as the founder of the philosophy of history.

But Montesquieu understood better the nature of laws, which for him, at least in principle, are but metaphysical forces antecedent to the facts, the expressions summarising a series of continuously concatenated phenomena, "relations inherent in the nature of things." History and institutions are the outcome of the spheres inhabited or traversed by man, of climatic and physical conditions, of wants, ethnical fusions, wars, alliances, education, religions, discoveries. Voltaire, who criticised the "*Spirit of Laws*," employs on the whole the same elements, and scarcely formulates any other conclusions. In his preference for the *English Monarchy* also he agrees with Vico and Montesquieu. But his "*Essay on Customs*," which is a sort of universal history, bears the stamp of a more liberal spirit, though less systematic and incisive, and befitting the apostle of toleration, of humanity, and equity. But this is not the place to examine more fully such well-known works, and we must in any case return to the subject of general philosophy.

The whole of the eighteenth century is influenced by two men of very different temperaments, but both equally indebted to our gratitude for having laboured for the enfranchisement of human thought. These are Voltaire and Diderot, who served also as the rallying point, and often as the centre of initiation, for every variety of mental activity.

Voltaire (1694-1778) is the true sovereign of an empire vaster and more lasting than the states of Louis XV. or Frederick II. Ensured by a prudent exile from the caresses and angry fits of princes, courtiers, and favourites, he devoted his twenty-five last years to opposing political abuses, to "crushing the infamous," to defending and avenging undeserved misfortune. Without speaking of his "*Letters*" and "*Metaphysics*," it will suffice to mention his "*Bible Explained*," "*Philosophic Dictionary*," "*Dialogues and Romances*." It is far from our intention to justify Voltaire in respect of opinions which he always combated, for at least thought he did so. A rationalist and deist, we shall see to what an extent

his only philosophic rule is the reversed Christian axiom : *Nego quia absurdum*. He appeals above all to good sense (itself more personal and more worthy of faith than the common sense) and to liberty. But he must not be supposed to have neglected observation, which he himself long practised ; he is abreast, but not in advance, of the physical and natural sciences of his times ; but precisely because of the infinite grasp of his mind, he remains undecided in the midst of the various theories ; and from his works may be drawn arguments on whichever side we please—but always excepting Christianity—for or against the sovereignty of reason, the immortality of the soul, divine justice, &c. Bersot has taken the trouble to collect all the passages that seem to associate Voltaire with that mitigated spiritualism, that eclecticism so dear to the respectable class of thinkers. Yet nothing would be easier than to give this picture its counterpart, one far more interesting, and much more like the real Voltaire—the *esoteric* Voltaire.

Voltaire's god is but another name for nature. So fully aware is the philosopher of the superfluity, the inanity of his supreme being, that he neither ventures, wishes, nor is able to define him. He identifies him constantly with the order of things ; the very order, so indifferent in itself, by which he is beguiled ; with those final causes which, though in many places rejected, still haunt him incessantly. His deity, however, he confines within the inexorable limits of the laws laid down by himself ; and adds that, even had not this deity made them, he would still be compelled to obey them. And when he exclaims : "If this God did not exist he ought to be invented, Diderot is justified in retorting : "That is precisely what has been done !" Altogether the real value of Voltaire's deism consists in its uselessness and inconsistency ; it is the last refuge of the metaphysical idea, in which are collected and reduced to their essential emptiness all the proofs served up *ad nauseam* by anthropomorphic prejudice ; a mere breath, and they crumble into a common and hopeless phantom. This is the great service rendered to philosophy by Voltaire. Saint-Bonve has said : "With his God, who created man and then left him to act like the most mischievous of monkeys, and exposed over and above

to every risk and every scourge, Voltaire is inconsequent, and his deism is baseless."

However, with a solitary exception, metaphysical entities had no real hold on the mind of Voltaire. "Every being," he writes, "is circumscribed in its nature." He measures liberty by the power of realising the desire determined by sensation.

"God has not concealed in plants a hidden being called *vegetation*; neither is there in the animal a secret creature called *sensation* There is no real being that might be called the human understanding; none that is called will. Man reasons, desires, wills; but his will, his desire, and reason are not distinct substances. The great fault of the Platonic, and all our subsequent schools, was to take words for things."

"The eternal principle has so arranged matters that, given a well-constituted head, a cerebellum neither too humid nor too dry, I shall have thoughts Here you will ask me whether our souls will perish like all else that vegetates, or whether they will pass into other bodies, or whether they will one day assume the same again, or whether they will take wing to other worlds. To this I answer that the gift of knowing what a soul is has been denied me. I assuredly know that the supreme power which rules nature has endowed my individuality with the faculty of feeling, thinking, and explaining my thoughts. And when I am asked whether after my death these faculties will persist, I am at the first flush tempted almost to ask, in my turn, whether the nightingale's song persists after the bird has been devoured by an eagle?"

From Voltaire's deism to his atheism there is but one step, which Diderot took more than once, advancing and receding according to circumstances. Those who accuse the great athletes of the last century of inconsistency are too apt to forget the exigences, the risks, the interests of the warfare carried on by unarmed men against the prevailing tradition, against a jealous and persecuting authority.

Denis Diderot, son of the Langres master-cutler, creator and soul of the "Encyclopædia," a noble and vigorous mind, and one

of the most sympathetic and genial spirits ever produced by France, was long much more famous than really understood. Indeed it was quite impossible to form a sound estimate of Diderot's doctrine until his latest editor, the lamented Jules Assézat, introduced the chronological arrangement in the order of his materials; thus enabling us to follow, in all the branches of knowledge, the development and progress of this vast genius—at once philosopher, novelist, moralist, savant, and publicist.

He has assuredly well deserved of French thought, and of all mankind, who, intended for the Church and, like Voltaire, educated by the Jesuits, passing from doubt to the critical study of positive religions, from scepticism to natural religion, from rationalism to observation, advanced step by step to the conception of a purely human moral system, to the intuition of the marvellous discoveries in modern zoology, anthropology, and physiology. •

At the opening of his career, about his thirtieth year, Diderot had allowed himself to publish a licentious allegory, which would now be found somewhat indigestible reading. But it was in the taste of the times, and was followed by no censure or criminal proceedings. The satire was thought amusing; and in the midst of a hundred offensive absurdities there is already revealed the disciple of the experimental school, the future author of "D'Alembert's Dream."

"In the void of space I perceived a building upheld as if by enchantment. It rested on nothing. Its columns, not half a foot in diameter, supported arches visible only through their symmetrically disposed openings I reached the foot of a throne, with a great cobweb for dais. It seemed balanced as it were on a needle's point A hundred times I trembled for its occupant. He was an old man with a long beard, as withered and more naked than any of his disciples. In a goblet, full of a subtle fluid he dipped a straw, applying it to his mouth, and blowing bubbles to a crowd of spectators who were labouring to bear them to the clouds In the distance I perceived a child walking with slow but confident steps As he advanced all his limbs grew larger, and in the progress of his successive

growths he seemed to assume a hundred different forms. I saw him direct heavenwards a long telescope, calculate the fall of bodies by means of a pendulum, ascertain the density of the atmosphere with a tube filled with quicksilver, and with a prism decompose light. He had now become a huge colossus, his head touching the skies, his feet lost in the abyss, his arms reaching from pole to pole With his right hand he waved a torch, whose light was diffused to a great distance in the ambient air, lighting up the depths of the waters and penetrating into the bowels of the earth. 'Who,' I asked of Plato, 'is yonder gigantic figure coming hither?' 'In him I recognise Observation,' he answered. Adding: 'Let us flee; this edifice will last but a moment longer.' With these words he departs and I follow. The colossus arrives and strikes the doorway, which falls with a fearful crash, and I wake up."

Thus falls that "gateway of hypotheses," the palace of "those accursed metaphysics which have turned so many heads." Nevertheless Diderot still gropes. In his "Essay on Merit and Virtue" (1744), translated or imitated from Shaftesbury, while separating ethics and justice from religion, he endeavours to distinguish between an optimist *theism* and an indifferent *deism*. In his "Philosophic Musings," published in 1746, and the same year condemned to the flames, deism crops up again, arguing against atheism. In the "Ramblings of a Sceptic," less known, though fully equal to the foregoing, he reviews the devout world, the learned and lettered world, and frivolous society. The first moves painfully through a thorny path, and here Diderot examines the proofs of revelation and the mysteries in a way that settles the matter once for all, whatever the orthodox expounders may think of his arguments. Further on he listens to the discourses of the sages beneath the chestnuts of the Elysian Fields. Lastly, the flowery highway is the common rendezvous resorted to by the hypocrites of the thorny path and the philosophers, here seeking recreation. The most amusing invention is that of the bandage and white robe—garb of the mystagogists. In order to reach heaven they must have kept the bandage on their eyes and preserved the robe spotless. Fortunately along the route there are

many recesses where the one may be raised and the other removed, without counting the many ways it may be conveniently tucked up.

The "Letters on the Blind for the Use of Those who See" (1749) begins to mark more decidedly the evolution of the sceptic. Deism and natural religion, though still occasionally revived, will receive but scant comfort from the discourses of the blind and moribund Saunderson. "If nature offers us a hard knot to untie, let us leave it alone, and not cut it with the hand of a being who then becomes a fresh knot more difficult than the first. Ask of an Indian why the world remains suspended in mid air, and he answers that it is borne on an elephant's back. And the elephant?—On a turtle. And the turtle?—You pity this Indian." Further on Saunderson, with Lucretius and before Darwin, formulates the theory of the struggle for existence. It is Diderot's first decided step towards the method which seeks in things themselves the secret of their origin and permutations. He refers incidentally to the famous hypothesis of the statue successively animated by the senses that enable it at last to think.

But those brilliant views and new precepts, in virtue of which Diderot is our contemporary, must be sought in the "Interpretation of Nature," in the "Sceptic's Prayer," in the "Principles of Matter and Motion," above all, in the admirable and delightful "D'Alembert's Dream" (a pure masterpiece); further in the "Supplement to Bougainville," and the "Discourse with the Marchioness." Diderot was the first to proclaim that the reign of mathematics, that logical development of two or three abstractions, was drawing to a close, and that of the natural sciences about to begin; and also that rational was about to make room for experimental philosophy.

"Facts, whatever be their nature, are the true wealth of the philosopher. Rational philosophy is occupied much more in connecting the facts it possesses than in collecting others Experimental philosophy, which advances no theories, is always satisfied with what comes to hand Rational philosophy is always well informed, even when what it had in view does not come to hand."

"Of Thee, O Supreme Being! I ask nothing For the course of things is necessary in itself, if you exist not; or through your decree, if you do exist The physicist will leave the *why* and occupy himself only with the *how*. The *how* is obtained from beings; the *why* from our understanding—it clings to our systems. Nothing is more idle than the question: *Why* does anything exist? There is an order essentially consequent upon the primitive qualities of matter The particular qualities pertain either to the substance as a whole, or to the substance divided and decomposed. When physical studies are more advanced, it will be recognised that all phenomena, whether of weight, buoyancy, attraction, magnetism, or electricity, are but different aspects of the same affection (motion). The chain of causes had no beginning, and that of effects will have no end. The assumption of any being whatsoever placed outside of the material universe is impossible." We see that scepticism has been left far behind. "Sceptic!" asked Borden, "who is a sceptic?"

When Diderot banishes metaphysics from the general principles of science, he is not likely to consult them in the study of living organisms. "Who knows," he says, "the history of our globe? How many tracts of country, now isolated, were formerly connected?" And in two pages ("Interpretation of Nature," lviii.) he sketches the whole system of transformation in anticipation of Lamarck. In "D'Alembert's Dream," which contains the germ of all physiology and biology, he defines *atarism*—the tendency to return to hereditary types. He conceives the living unity as an aggregate of animated particles, which differ from the so-called inorganic elements only by a passing condition. Animals are instruments endowed with sensibility and memory; the *ego* is nothing but the equinuity of impressions and recollections. As to those forms which contain, and are inseparable from, the organism, are they abstract types? Are moulds the principles of the forms? What is a mould? Is it a real and pre-existing being? Or is it not rather the limits of the energy of one or more living molecules, "limits determined by the relation of the energy to the resistances?"

If the organism is the condition of intelligence ; if its working and its wants are found at the bottom of every intellectual or moral act ; Diderot, no more than Epicurus before him, subordinates the passions, the affections, the social relations, to the direct and immediate satisfaction of the grosser appetites. Of a more elevated and delicate temperament than La Mettrie or Helvetius, he admits transitions between passion and love, between the appetite for sumptuous fare, or for gold and magnanimous ambitions. He proclaims the gradual progress of man and the ever-increasing delicacy of the cerebral faculties, the ultimate predominance of the reflective desires over the mechanical instincts. The subjoined passages will further show how just and how wise were his views regarding human institutions.

"Property acquired by labour, or by the right of the first occupant, first caused the want of laws to be felt. . . . All wars arise from a common claim to the same property. . . . All civil and national institutions in the long run become consecrated and degenerate into supernatural and divine laws, and reciprocally, all supernatural and divine laws are strengthened and perpetuated by degenerating into civil and national laws. This is one of the most disastrous revivals for the happiness and development of the human family. . . . There existed a natural man and into him there has been introduced an artificial man. . . . Sometimes the natural man is the strongest ; sometimes he is vanquished by moral and artificial man. . . . We shall protest against senseless laws until they are reformed ; meantime we shall obey them. . . ."

Such is the wonderful genius (we shall not even trouble ourselves to defend him against his old and more recent enemies) who towards the middle of the century (1749-1750) conceived the vast project of the "Encyclopædia," and accomplished it in spite of much abuse, many suspensions and threats. He had grasped the idea that the most potent weapon against tradition and authority was the cycle of knowledge acquired by labour and experience. Hence the misgivings of the clerical and monarchical parties ; hence the persecutions. The great legend of our races still holds true. In the moral world as in the universe, the struggle is ever between light and darkness.

The "Encyclopædia" has no doubt grown old; but it did its work, and it remains the great title of its originator to fame.

Around the name of Diderot we shall summarily group his fellow-workers or successors, all deserving of a careful study, and though they did not all live on good terms together, still all advanced the current of thought in the way of experience. Such were the great geometrician D'Alembert, half-sensualist, half-Cartesian; Helvetius, author of "L'Esprit;" Holbach, whose masterpiece was the "System of Nature;" La Mettrie; Naigeon, a learned contributor to the philosophic part of the "Encyclopædia;" Condorcet, Volney, Danton, who resembled his master in his eloquence and warmth of feeling. We can do no more than mention the English materialists Hartley and Priestley, the great chemist and discoverer of oxygen; both of whom had the weakness to seek in the Christian dogma of the resurrection arguments in favour of the material nature of the soul.

In this galaxy of scientific names, perhaps the most remarkable was La Mettrie (1709-1777), who was certainly the most calumniated, or rather despised and ignored. But Lange, Assézat, and more recently Jules Saury have rendered him full justice. A disciple of Aristippus rather than of Epicurus, in his moral theories he assigns too great a part to the material pleasures. But on the whole he led a brave, honest and useful life, and died of a fit of indigestion! What more would you have? Before Condillac, and before the hypothesis of the statue, he published a very solid "Natural History of the Soul" (1745). Applying to man Descartes' theory regarding animals, he employed the expressions "Machine-man, Plant-man," serious titles enough to the consideration of posterity. Let us add that in these much-abused books there will be found, though frequently couched in a somewhat rhetorical style, a great number of just and original ideas on the intellectual and physical organism, ideas often enough borrowed and distorted by those who have brought the charge of ignorance and plagiarism against La Mettrie, a learned physician and pupil of Boerhaave.

So rich is this epoch in men and ideas that we are compelled to pass over the incomplete theories of the economists on wealth

and government, the excellent utilitarian system of Jeremy Bentham, and Turgot himself, who coupled a somewhat feeble philosophy with admirable views on communal and public administration. Unfortunately the sentimental reaction which was being developed by the side of the great scientific movement summarised by the "Encyclopædia," soon acquires the social and political ascendancy in France, while Germany strikes the keynote of the reaction in metaphysics. Before estimating the deplorable consequences of these relapses we shall endeavour to grasp the main features of the general conception elaborated in the eighteenth century by the school of objective experience.

The absolute mechanism of Descartes, confirmed and rectified by Newton and his successors, sways the sidereal and planetary universe. It is here, where distances and bodies seem reduced to geometrical points, that the rigorous corollaries involved in the abstract notions of number and extent may be applied without obstacle to the motion, distance, and figure of the heavenly bodies; it is here also that the constancy of inexorable laws, substituted for the caprice of a providence, neutralises and suppresses the idea of a god. The uselessness of an architect or creator is already the foregone conclusion of astronomy, and this final statement of science will be uttered by Laplace: "I have had no need of this hypothesis." It is remarkable that, as we shall see, the first sketch of the "System of the Universe" will be traced by Emmanuel Kant, the most speculative mind of the eighteenth century.

We know, or at least we see how the Cosmos is made. But of what is it made? Chemistry prepares to answer this question. In the footsteps of Priestley and Lavoisier, it proceeds to draw up a list of irreducible bodies, which, at least for our terrestrial world, constitute the substance of things. It separates them from their combinations, of which it gives us the formulas. It studies and refines their properties, which are nothing else but their mutual relations and the proportions in which they combine. Thus are confirmed the intuitions of Anaximander, of Democritus, Epicurus, and Descartes. But the material particles, indivisible, or divisible and infinitely, differing in form and not in substance, the points of

Spinoza, composed of thought and expansion, the active and virtual monads of Leibnitz, are now replaced by determined and distinct elements, each of which is homogeneous and constituted by parts always of like nature. Matter, if it has ever been, ceases to be a metaphysical entity, and becomes the collective name of simple bodies and their aggregates. But now comes the question: Are these fundamental bodies themselves indefinitely divisible or reducible to atoms? Will observation increase or diminish their number? Will the properties of their molecules be resolved into relations of still smaller particles, either similar or different in form and substance? These are all problems for the chemistry of the future, the solution of which it will be the province of philosophy to record. But meantime the reality of the simple bodies and of their combinations is a more than sufficient foundation for scientific materialism.

The configuration of the earth, the distribution of its islands, continents, mountains, and water systems are henceforth embraced by positive science. Its bulk, circumference, diameter become the object of careful measurements, with which are associated the names of Maupertius and Lacondamine. We now know that our planet occupies in the solar system the place determined by its mass. Its claim to be regarded in any sense as the *raison d'être* of the vast universe, of which it is no longer the centre, is called in question, and a great blow is thus given to the doctrine of final causes.

The data supplied by geodesy and geography on the present state of the globe, are not yet complete for geology. But Cuvier appears (born 1773), and the daring imagination of Telliamed (De Maillet), in spite of Voltaire's "good sense," invites thoughtful minds to seek elsewhere than in the Bible, the history of our globe. The interior of the earth is not yet consulted regarding its revolutions. Nevertheless, Buffon, who in his first work, "The Theory of the Earth," derided the inventors of remote and possible causes, ends by imagining, occasionally guessing, the natural succession of the changes undergone by the globe from the time that some erratic comet detached it from the sun. In his

masterpiece, "The Epochs of Nature," he writes: "The earth was once a fluid, because it bulges at the equator; it was incandescent, because it retains an inward heat; cooling down, it became covered by the waters," which have left on the crests of the mountains those shells jocularly ascribed by Voltaire to careless pilgrims. "The temperature has changed, since southern animals once inhabited the regions of the north." Such are some of the grand and attractive hypotheses bequeathed by Buffon to his successors. "Buffon," says Flourens; "saw that the history of the globe has its ages, its changes, its revolutions and epochs, like the history of man."

Botanical and zoological classification, and the knowledge of plants and animals have made considerable progress. Linnæus has traced the broad outlines and designed the series, and the three Jussieus complete and perfect the botanical part of his work. His more natural distribution of the animal species becomes universally adopted. He clearly determines the steps that lead from plants to man. The plant feeds, grows, and propagates itself; the animal moves and feels; man feels and thinks. Man is distinguished, but not separated, from the Animal Kingdom; he merely occupies the first rank in the order of the primates. Either animals are not machines, or else man is one; there are nothing but gradations between them. Thus falls the arbitrary separation upheld by Descartes; and it is a deist by conviction who restores man to his place in nature. It is also a deist, a spiritualist, George Leroy, who, in his remarkable essay on comparative psychology, "Letters on Animals," recognises in brute creation the germs of the mental faculties which have in man been developed by a more perfect organism and a superior culture. Another deist, Ch. Bonnet, of Geneva, follower at once of Condillac and Leibnitz, does not exclude animals from the progressive destinies which his "Philosophic Palingenesis" (1770) promises to the human soul. Leaving aside his Leibnitzian theory of the soul, conceived as a force, as an ethereal principle, indissolubly united to a sort of material monad (the callous body), we have in the "Analytical Essay on the Faculties" (1760), a thoroughly sensualist explanation of the mind.

Bonnet is a decided physiologist. He attributes all the phenomena of thought, without exception, to the action of the nervous fibres. The indispensable condition of the existence of ideas is the shock communicated to the brain by the separate fibres, whose union constitutes each nerve. The habit of sensation imparts to the fibres peculiar to each sense a constantly increasing pliancy and activity, a more delicate sensibility, which distinguishes by comparison the actual impression from similar impressions already received, this reminiscence itself being awakened by the fresh shock. Memory is the result of a physiological operation. In a word, the activity of the soul is subordinated to sensibility, sensibility to the play of the nerves, the play of the nerves to the action of outward objects. God has so willed it—a point which matters little, and which adds nothing to the fact. To this same God he attributes the creation, once for all, of all germs and their destinies. "The primitive and imperfect animal already contained in germ the more perfect animal." This is also the language of Darwin and Haeckel. Bonnet, like Diderot, guessed the theory of evolution by transmutation. And stripped of its mystical chimeras, what is his Palingenesis but indefinite metamorphosis substituted for metempsychosis?

If Buffon does not get so far as this, he at least avoids *metaphysiological* vagaries. While occasionally still echoing Descartes, he substitutes organic shocks for *animal spirits*. With Bonnet he regards every living individual as composed of an infinite number of organic molecules, accumulated germs perpetually renewing the substance of the body. There is every reason for believing that his concessions to spiritualism and deism were mere matters of form. "I have always spoken of a creator," he is reported to have remarked to Hérault-Séchelles, "but all that need be done is to replace this term by *the power of nature*, and the 'power of nature' is equivalent to the pure and simple verification of phenomena."

But it is in Lamarck's "Zoological Philosophy" (1809) that we must look for the first systematic application of those ideas of permutation which were hovering in the air from the time of Diderot to that of Ch. Bonnet. This is the starting-point of the grand

hypothesis which is at present renovating the science of zoology. In his "Researches on the Organisation of Living Bodies" (1802) Lamarck had already, together with many errors, advanced the, for the time, daring views rejected by Cuvier, but accepted by Geoffroy Saint-Hilaire. The inferior organisms are produced by spontaneous generation, under the influence of heat or electricity; the necessity of living and the consequent process of nourishment determining the activity of the organs. Rudimentary irritability has developed from mere life to sensation. The variety of animal forms corresponds to the successive degrees of development represented by species. Species have become fixed, but the barriers separating them are the slow growth of time. Species are but halting-places in the ascending series of transformations; they have grown one from the other; fossils are the ancestors of living organisms. Born in 1744, Lamarck died in 1829.

If from the general conception of the universe, of the earth and living series, we pass to that of humanity, Dupuis comes to unroll the history of religions, while Volney will proclaim their *Fall* (1791), and Condorcet present us with his "Sketch of the Progress of the Human Mind." This work, hurriedly composed in a house in the Rue Servandoni, while hiding from the proscription of the Girondists (1794), broadly resumes the whole historic doctrine elaborated in the eighteenth century by Montesquieu, Voltaire, and Diderot, of whom Condorcet, the friend of D'Alembert and protégé of Turgot, was one of the most active collaborators. The philosophy of history had made a great stride since the time of Vico. From revolving within a limited circle it had risen with Turgot to the theory of indefinite progress. But it has not yet formulated that pretended law, according to which a given state is necessarily superior to the one it succeeds, the Merovingian régime to that of the Antonines, feudal barbarism to Athenian civilisation, Christianity to the conceptions of an Aristotle or an Epicurus. Man has advanced towards truth and happiness in spite of many a relapse through intermittent periods of decay, caused and marked by the triumph of superstitions and tyrannies; he will never cease to progress in the same direction till the crack of doom.

Condorcet's "Sketch" is disfigured by some declamatory matter. But on the whole how just it is in its broad outlines, how little removed from the definite scheme that science will one day trace! Nine epochs are embraced in the cycle of the past from savage life to the French Republic. Between the two meridians of humanity—Greek civilisation, which produced Pythagoras (?), Democritus, Epicurus, and the modern era stretching from Descartes and Locke to the "Encyclopædia" and the Revolution—Christianity and barbarism appear like a chaos, with their Alexandrian and scholastic "Sloughs of Despond." What will the tenth epoch be? What advancement has it in store for those who have been emancipated by 1789? The equality of fellow-citizens, the equality of peoples. The suppression of monopolies and privileges will put an end to the inequality of wealth. The spread of knowledge, medicine, hygiene, will diminish the inequality of minds and individual forces. When every nation shall have achieved the right of disposing of its blood and treasures, war will appear the most hateful of crimes. Under the sanction of treaties, the freedom of commerce (free trade?) will everywhere diffuse wellbeing; a universal language will minister to identical and equal wants; mankind will all be one "happy family." In this ideal allowance must be made for the visionary, the influence of Rousseau, Mably, Morelly; but it still remains a noble commentary on the great motto, *Liberty, Equality, Brotherhood*, the magnanimous last will of a man writing under the shadow of the scaffold! Without a complaint, without a thought for himself, this modest hero, breathing the very soul of the eighteenth century, penned this hymn to progress.

The development of the natural and historical sciences, jointly with the social shock which overthrew divine right and privilege, had diverted men's minds from what is called pure speculation. At a time when the most daring hypotheses claimed to start at least from experiment, metaphysics played a very humble part, though still far from being disarmed. We shall see that metaphysical studies were rampant in Germany, while in France taking refuge in sentimentalism.

"Sentiment" has the misfortune of being one of the vaguest

terms in the dictionary. Strictly speaking, it is equivalent to sensation, to the conscious state, to the mirrored thought, to the opinion we form, the emotion we feel; yet further, to a certain indefinable impassioned languor, at once enervating and stimulating thought. When opposed to experience it means the absence of reflection, anything spontaneous, or instinctive. In fact it is a rapid judgment—true or false—proceeding altogether from the individual temperament and *common sense*, rejecting both the control of *good sense* and the analysis of reason. But, as good sense and reason itself are questionable guides, what authority can sentiment have? It claims to be simple and primordial, whereas it is really confused, the elements entering into its composition, instinct, temperament, common sense, being themselves extremely complex results of the individual organism and of social compromises. In practical life the influence of sentiment is considerable, because man has seldom the leisure or means of reasoning on his actions. But the value of what it produces must be estimated, not by sentiment itself, but by whatever error or truth it may unwittingly involve. It has no right to constitute itself a moral rule, still less an intellectual and philosophic principle. If correct, it agrees with experience and is useless; if false it is null and of no account.

In philosophy sentiment is absolute ignorance—that ignorance which denies science—and it thereby borders at once on scepticism and mysticism. Such then is the lowly and last refuge of metaphysicians—suspected by common sense, scoffed at by good sense, criticised by reason. But the refuge is by no means ill-chosen, and metaphysicians are fully aware of its strong and weak points. Their arguments exhausted, they take their stand in the unexplained, declaring it to be inexplicable; erect behind their cloudy ramparts, their arms raised heavenwards, they bless and consecrate, supplying the place of reasons with a solemn mimicry. They well know that there exist simple minds, weak spirits, exhausted energies, forsaken hearts—all a ready prey to solemn pathos, to the music of high-flown phrases. With such they are nurtured, soothed, intoxicated, pending the social convulsion—the momentary

weariness of humanity that brings back the inevitable reaction. Then the metaphysical phantom swoops down and recovers its lost position for twenty, perhaps fifty years.

In any case the eighteenth century presented more than one weak side to the allurements of sentiment. Was it not overflowing with long-suppressed vital energies, with vague forecastings, with fascinating hopes? Its bantering scepticism was intensified by enthusiasm. Dazzled by the new light shed by science and history on the universe and on man; eager for happiness, pleasure; at times enervated to tears by the abuse of its powers lavished on bold and gallant conversions, it was more than ordinarily susceptible to emotions of tenderness and morbid sentimentality, without any definite object. Or rather, this object of an admiring worship existed; but it was a mere word—nature—which meant nothing and said all; immensity of the starry regions, beauty of land and water, free flights of the heart and the fancy. To this moral state there corresponded, especially in the second half of the century, a declamatory tone, through which is heard the genuine voice of feeling, and which continues to increase till 1830. Diderot was not free from it, any more than were Von Holbach, La Mettrie, Mirabeau, Condorcet, or Volney. But no one was more affected by it than Rousseau, master and head of the sentimental school.

Through the richness and amplitude of his pliant style, and his genius as a writer, no less than by eccentric habits, he exercised an enormous sway over the most susceptible section of society—over woman, the people, the "Bohemian" element, dreamers and utopists; while thinkers and statesmen were gained over by his generous and earnest denunciations of social and political abuses, by his aspirations after justice and even truth, his views, often admirable enough, on the education of childhood. Here, however, he can be considered only as the leader of the metaphysical and religious reaction.

Those whose early education has been neglected or left unfinished are fond of treasuring up bits and scraps borrowed from all sources, and tacked on to the instinctive bias of their own nature. Such was Rousseau, the greater part of whose ideas were supplied by the

current philosophies, while his belief in the authority of sentiment came from himself. It was not merely the accident of an academical competition that gave occasion to his social theories, in which the sovereignty of the people ends in religious and civil tyranny. The hatred of an inequality by which he felt himself oppressed had predisposed him in favour of the utopia of natural equality. If men have been born equal they were all equally good, and it must be society that has perverted them. Hence the necessity of reverting, as far as possible, by a social contract, to the golden age of the savage state. Sciences, arts, letters, everything that excites the passions, must be excluded from the Commonwealth. But by a strange inconsistency, the sovereignty of the individual sense is sacrificed to the will of the majority. And why is the State religion imposed under penalty of death? Because, in spite of himself, Rousseau is imbued with the utilitarian doctrines, which he misinterprets. He forgets that the common interest is made up of the individual interests, and that he himself must have perished in the society he imagines.

His extremely summary philosophy is no more solid than his sociology. Mainly a pupil of Hobbes and Locke, now a sensualist, now a materialist, a constant opponent of clerical superstitions and greed, he saw his works consigned to the flames by Protestants and Catholics alike. And yet he was the most active and powerful accomplice of the religious reaction. His insane quarrels with Diderot, Hume, and the Encyclopædists threw him back into the camp to which his own tendencies attracted him, from which his rebellious spirit had with difficulty rescued him. And thus he returned to the current triflings, to the intermediate truths, to natural religion; for this is all that is contained in the rich piece of rhetoric embodied in the "Emile." The solemn Savoyard vicar, while admitting space and spirit, matter and the great architect, declares that "all is one, proclaiming a single intelligence," that God, being perfect, has ordained all for the best, that evil is due to our "baneful progress" to the abuse of human liberty. To this true and well-known assertion he adds that the principle of all action "is in the will of a free being," adding, that "we cannot go

further back." Here then is *sentiment* taken in the act, in its simple recklessness. But the force retained in the rationalistic theories by this sentiment, which Rousseau, under the name of conscience, places above reason, is shown in the strange fact that the independence of the *ego*, the irreducible nature of liberty and will, dominates Kant's "Critique," Fichte's vagaries, and all the spiritualistic systems.

From these groundless assertions will flow the effusions of Bernardin de Saint-Pierre, Chateaubriand's sentimentalities, and the metaphysics of the French eclectics. Sentiment has re-enthroned the God of final causes. Speaking of Napoleon in connection with the Concordat, Thibaudeau remarked: "His nerves were in sympathy with the sentiment of the existence of God:" a phrase which sums up all theodicy.

§ 5. *German Idealism: Kant — Fichte — Schelling — Hegel — Schopenhauer — Von Hartmann. Monism.*

Between Leibnitz and Kant, German thought remained stationary rather than inactive. Leibnitz dominates through Wolf, not however to the exclusion of Locke, Condillac, or traditional spiritualism. But without dwelling on the moderate thinkers and eclectics of all sorts, from Merian to Mendelssohn, it might be more instructive to seek the germs of a philosophy, or rather of a new metaphysical system, in the "New Organon" of Lambert (1728-1777), and in his "Architectonic, or Theory of the Simple and the Primitive Elements of Knowledge." But these *simple and primitive elements* of Lambert we shall elsewhere meet under the name of forms and categories.

Immanuel Kant (1724-1804), in whom is summed up the German philosophy of the eighteenth century, was a profound and subtle genius. His private virtues, his sympathies for the French revolution, his love of freedom and justice, render him a noble specimen of human nature. But our admiration for his intellectual powers and moral integrity, nay, even for the originality of his

doctrine, cannot blind us to the flagrant contradictions, feebleness, and uselessness of the "Critique." We shall approach this hallowed ground without any superstitious terrors, heedless of the charge of incompetency that may be urged against us by the moderns, worshippers of the Königsberg metaphysician, who will probably reproach us with adhering to "the philosophy of those who lack the philosophic spirit." In our opinion the "Natural History and General Theory of the Heavens according to the Newtonian Principles" (1755), an ingenious sketch of the system to which Laplace, later on, attached his name, has more value and importance in the history of the human mind than all the distinctions of the "Pure Reason" and all the vicious circles of the *practical reason*. Doubtless it is interesting, especially for metaphysicians, to see metaphysics utterly ruined by metaphysics themselves. But Kant has been at infinite pains to break through open doors. The work attempted by him had already been accomplished by experience with more radical and surer methods, and the proof of this is the fact that Kant has remained a captive of the very chimeras he had demolished. His metaphysical scepticism has its pendant in a moral dogmatism, that restores from base to summit the old edifice of the final causes and of the theodicy. It is calculated, in fact, to shake the authority of that excessive logic which demonstrates at once the futility and the necessity of metaphysics.

Kant himself was the victim of his early training. Intended by nature for the experimental study of man and the universe, as shown by his first work (a theory of the universe), and by his last ("A Pragmatical Treatise on Anthropology"), he was swayed throughout his life by a false conception of mathematical truths, and by that hollow theory of forces, of the *virtualities*, added by Leibnitz to the mechanism of Descartes. Nay, more; until roused by Hume's work from his "dogmatic sleep," he had been a firm believer in all the entities of the most commonplace spiritualism. It is through reason, one of these very entities, that he sets about overthrowing all the others; and while in the very act of doing so, he endeavours to re-establish them by means of another reason, intended to falsify the first. Not only is his whole work a

"Penelope's web," undone as fast as it is put together, but his labours themselves are carried on in a world apart, a *transcendental* world, like the island of Laputa, attached to the real world by a slender thread often severed by his successors.

Kant's starting-point is an extremely summary psychology. At the outset he recognises in the play of the senses the condition of mental development; he even proclaims with Locke and Hume that whatever lies beyond the limits of experience is beyond the limits of knowledge. But, reviving a confusion of ideas common to the Hindu philosophy, he presently includes amongst the senses an *internal sense*, the old *manas*, the nature and seat of which he leaves undetermined.

After this singular concession to a mitigated sensualism, Kant plunges into metaphysics, whence he never again emerges. The mathematical axioms, whose experimental origin he fails to fathom, supply him with the standard of universal and necessary ideas or truths, rational elements of knowledge, by whose aid experiment becomes possible.*

Doubtless the results of experience constitute the *substance* of knowledge; but this substance would remain undetermined but for the existence of certain forms to which the mind reduces it. The first of these forms is the intellect itself, which is not the outcome, but the condition of experience. We thus come again to the dictum: *Nihil in intellectu quod non prius in sensu, nisi ipse intellectus*. Kant fails to perceive that this intellect, which he very superficially accepts as an irreducible fact, is itself conditioned by the existence of man, that the human organism must in its turn be subordinated to the surroundings which nourish, modify, and consume it, that these indispensable surroundings proceed from chemical combinations and sidereal motions, and so on. His distinction between the *a priori* and the *a posteriori* is destitute of all value, for, in the first place, there is nothing that is not *a posteriori*, and, in the second, all facts are *a priori* in respect of those who perceive them.

The metaphysical attempt to subordinate the substance of knowledge to the forms which it has to assume is the familiar error of all

idealistic logicians. Without the *substance* there can be no *form*; and taking these terms even in their transcendental sense, it is the *substance* that suggests to the mind the *form* which by the mind it is made to assume. For *form* is merely a general idea, an abstraction resulting from a comparison of like or unlike objects revealed by experience. So well does Kant feel this, that to universal and necessary ideas, to *form* itself, he assigns a purely *subjective* value, an *ideal* reality. Hence in calling abstract and derived conceptions *a priori*, and *a posteriori* the experimental elements whence they derive, he reverses the terms; and all the efforts of his logic end in the most palpable paralogism. His scepticism is nothing but his own reaction against his false dogmatism.

In the mind Kant recognises three faculties: sense, understanding, reason. The first is passive, receiving *intuitions* or *representations* through the affections and sensations produced in us by outward objects; the understanding is spontaneous, grouping and co-ordinating the material supplied by sensibility; reason is transcendental, deducing the principles and laying down the laws of knowledge.

Yet, notwithstanding this, which is the true order (experience, judgment, and reasoning), reason is anterior to understanding, and understanding to sensibility, in the virtual and transcendental relation. How much vain labour to disturb such a settled order! From the admitted fact that experiment would be barren without judgment and reason, how can it follow that reason does not proceed from judgment and judgment from experience? And what is the value of this distinction between the passive and the spontaneous? For are not these two terms relative and correlative? And in the universe and in man is not everything action and reaction?

Kant attempted to create the science of *pure reason, a priori*, independently of everything supplied to the mind, consequently to this reason itself, by the experience of the outward senses and of the internal senses. In the name of this pure reason (a pure abstraction) he proposes to determine its office and function in the constitution of knowledge, and thereby to show the insignificance of

experience; lastly, to discuss the value and extent of knowledge reduced to this twofold origin—the senses and reason.

Hence the “Critique of Pure Reason” (1781) is at once an examination of experience and judgment by pure reason, and the critique exercised by pure reason on itself. A great flaw in this conception is the circumstance that pure reason is at once judge and judged; a still greater is the fact that pure reason never had any existence.

Applied to sensibility, pure reason becomes the *transcendental aesthetics*. But there was scarcely need of such a grandiloquent term to discover that all our sensations imply a certain concomitance and sequence expressed by the general terms of time and space, to declare that these two *à priori* forms of sensibility—time and space—are nothing in themselves, and that in them must be recognised the *subjective* conditions of our manner of representing things to ourselves. Is it not a mere logomachy to represent as virtually antecedent to sensation ideas that are subordinate and relative to it? Is not the fact of sequence or concomitance established by sensation? Could the ideas of time and space be produced without a sensible representation? Would they exist in the case of absolute paralysis? Do they exist in a complete syncope—in a dreamless sleep? Do we not see them develop themselves in the child when he stretches out his arm to grasp at the moon or any distant object? Can it be denied that the idea of distance is the result of experience?

Under the influence of the same delusion *transcendental logic* lays down, always *à priori*, the laws of the understanding—*pure concepts* or *categories*—in which he takes for granted the intuitions, in order to convert them into knowledge by an operation called judgment. Observe also that these *intuitions* are the sole *raison d'être* of the concepts themselves; and that the understanding is merely the general term comprising the concepts, just as sensibility comprises the intuitions. Anyhow, the twelve categories of the understanding are distributed, three each, in four groups corresponding to the ideas of quantity, of quality, relation, and modality:

- I. QUANTITY. (1) *Totality*, general judgments ; (2) *Plurality* (multitude), particular judgments ; (3) *Unity*, single judgments.
- II. QUALITY. (1) *Reality*, affirmative judgments ; (2) *Negation*, negative judgments ; (3) *Limitation*, limitative judgments.
- III. RELATION. (1) *Inherence* (accident) and *Substance*, categorical judgments ; (2) *Causality*, *Dependence* (effect), hypothetical judgments ; (3) *Communalitv*, disjunctive judgments.
- IV. MODALITY. (1) *Possibility*, *Impossibility*, problematical judgments ; (2) *Existence*, *Non-existence*, assertory judgments ; (3) *Necessity*, *Contingence*, apodictic judgments.

It would be useless to dwell on the fundamental defect of this learned and super-subtle analysis, on the illusion which consists in referring particular ideas to general types ; types which, on the contrary, proceed from them by means of abstraction. Kant's systematic classification results, moreover, in the negation of the *objective* value of the categories. They have no reality apart from the objects containing them ; they are entirely relative to the constitution of the human intellect, to the organism, which Kant here altogether ignores.

Are we therefore to look to pure reason for the criterion of certainty, vainly sought for in sensibility and the understanding ? By no means. There is no objective reality in the three ideas of the *ego*, the universe and God, ideas of pure reason, which *transcendental dialectics* deduce from the logical forms of ratiocination, and which are the foundation of the three transcendental sciences—psychology, cosmology, and rational theology. They merely interpret *an illusion natural to the human mind*. *Guiding* rather than *constituent* principles of knowledge, they can never determine the attributes or even the reality of whatever conceptions they may suggest beyond the limits of actual experience. Dialectics are powerless to resolve the pretended famous antinomies of pure reason. Is the universe limited or limitless ? Does nothing exist except the simple or its compounds ; or else,

does the simple not exist? Is the universe the work of a free agency, or of the necessary laws of nature? Is there, or is there not, an absolutely necessary being, at once a part and the cause of the universe? The thesis and antithesis are shown with equal force by dialectics. Both are false, and proceed from two illusions; one taking the phenomenon for the thing in itself, the other attributing an objective reality to the *noumenon*—the thing in itself. All such idle questions must be set aside; the mind has no right to put them; experience cannot solve them, nor transcendentalism verify their solution.

The ordinary propositions of metaphysics are in Kant refuted by still more subtle metaphysical arguments. With a relentless logic he successively overthrows all the assertions of rational theology, as it is called, reducing to nothing both the ontological, the cosmological and the physico-theological proofs. Though naturally indifferent to this triumphant refutation of phantoms, experience is still pleased to find in metaphysics themselves an unexpected ally. The coincidence is curious enough, but there was scarcely need of such roundabout ways to arrive at such obvious results.

The man who quits the solid ground of experience for the fanciful world of ideas is by Kant compared to the dove forsaking the atmosphere which offers the needed support to its wings, and plunging into the void. Although himself the inventor of transcendentalism, he declares that the transcendental, the *noumenon*, the *concept*, the *thing in itself*, is beyond our reach, is superfluous. Shall we then exclaim that there is an end of metaphysics, self-immolated? By no means; for Kant still firmly believes in what he destroys, and his scepticism is merely a step towards the most eccentric dogmatism. The demonstration refused by theoretic pure reason he seeks in practical pure reason. If he can show that the *illusions* of the senses, of the understanding, and of reason, are the principle and the end of human action, he will hasten to endow them with *objective reality*, and metaphysics will be once more re-established.

Speculative reason is not all reason; there is still another which stands in the same relation to the will that the first does to

the intellect. The will and the activity regulated by it have their conditions and their laws, like knowledge and the understanding themselves. It need scarcely be added that according to Kant these laws are *à priori*, independent, universal. In fact the *will* is something irreducible, a spontaneous and unmotivated impulse, a fact apart in the concatenation of causes, and not included in the general fatality of nature. This superficial view, this assertion opposed to all experience, meets nevertheless with resolute admirers. They do not, or will not, perceive how utterly chimerical is the attempt to found a moral system *apart from experience*. They must be left to their wilful blindness, though they alone might be able to tell us what their master means by the *objective* reality of the moral laws, and of that famous moral or *categorical imperative*, Kant's name for duty, which is imposed, one knows not from what source, on the will, although the will itself has already been declared autonomous and absolute mistress of human actions. We for our part, seeing that the moral laws everywhere spring from the relations between individuals, between groups of individuals and society, are further unable to understand how unselfishness can be the basis of those laws, which are directly referable to the common interest. Here, as everywhere, Kant reverses the terms, calling basis what is really the summit. Instead of the natural order of development—necessity, interest, right, duty, virtue, sacrifice—he gives us as the starting-point the last stage of the moral evolution, placed in the void, without *raison d'être* or support.

According to him the moral law implies freedom, and freedom in its turn proves *à priori* the existence of the moral law. We are fain to rest satisfied with this vicious circle, which is the basis of all the *postulates*. The *postulate* is the logical consequence of a more or less doubtful assertion, an assertion demonstrated in its turn by the *postulate* flowing from it. Thus, the progress towards moral perfection, being incapable of fulfilment in this life, implies the immortality of the individual, and *vice versa*. Thus also, the tendency towards the supreme good involves the necessity of a power capable of making it, of an omniscient, all-mighty being.

and so on. But enough of this. Kant may have shown himself an able critic of the moral doctrines based on education, on the civil constitution, on sensation, the moral sense, the idea of perfection, or the divine will; but he has added nothing to them. His *categorical imperative*, admitting for a moment this "conjurer's language," adds nothing to the various elements of morality, while the postulates of practical reason take their place with the forms and categories. The latter have even the advantage of being at least accurate and ingenious generalisations.

Round about these two principal works are grouped a number of more or less discursive treatises, the mere list of which we cannot here find room for. Kant dragged his metaphysics into the "Critique of the Understanding," in which he endeavours to reconcile mechanical motion and finality; into the *science of nature*; into the *doctrine of right* and that of *virtue*. But, setting aside the noumenon and the transcendental, the objective and subjective, the *à priori* and *à posteriori*, we shall find the practical conclusions of his critique far more solid than their principles. Kant was personally a severe and excellent moralist, and, what is more to the point, an enlightened mind who never belied his opinions, theoretically false but practically true, on the supremacy of reason and on the independence of the individual. For reason *ought* to be supreme, and man *ought* to be free. Such is indeed the goal. Detaching itself from the natural fatalities, from the physical and animal conditions whence it proceeds, the mind, slowly emancipated, must establish a new order, a true and logical order, but made solely by and for man, indifferent, or even opposed, to the order of the universe. Kant's mistake consisted in believing, with all metaphysicians, that reason, a result of experience, rules the universe and dominates all nature. Reason belongs to man alone, and only to the highest in the human series, a point which Kant would not allow. Reason is the guide of man once arrived at the civilised state; and here we are fully in accord with the philosopher who has so well distinguished between the positive right of legislations and rational justice, who has so clearly determined private and public right, that of society and of peoples. Amongst his

maxims are some which ought to be inscribed at the head of all codes, as, for instance, this: "All actions not opposed to the harmony of the individual and the general liberties are of common right."

Kant's absolute rationalism preserved him from the extravagances of mysticism. His "*Critique of Religion, considered within the limits of pure reason*" (1791) seemed daring to his contemporaries. As might be expected, it ends in what is called an enlightened deism, in which are resumed all the *postulates* of practical reason. "Practical reason is the sole judge of positive religion, as it is the sole source of natural religion." Kant does not go the length of asking whether a natural religion has any existence. His metaphysics, harmonising with his faith, brought him exactly to the point at which prudence obliged Voltaire to stop short, to which sentiment impelled Rousseau.

Kant's speculative critique failed to command the influence and the universal acceptance accorded to the clear practical good sense of a Voltaire, or the bold naturalism of a Diderot. By precipitating Germany into an excessive idealism, he did more harm than good to the cause of philosophy. Yet how superior he still is to his German contemporaries and successors, to the spiritual and sentimental Jacobi, to the mystic Herder, to Schopenhauer's "three sophists," Fichte, Schelling, and Hegel! In the first place, in his deservedly most celebrated work he reduces to powder all the theses of commonplace metaphysics. And, although he remained influenced by the very prejudices he seemed to have extirpated, he always recognised the claims of experience, tracing a clear line of demarcation between phenomena, that is to say, positive science, and the inaccessible and barren noumena, thus leaving the door open to science. Lastly, through his belief in the independence of the will, in the critical authority of the individual sense, through his contempt for the grosser superstitions, he prepared the way for the solid German exegetic school of Fenerbach and Strauss, who, however late, at least revived and confirmed the work of Voltaire and the French school of the eighteenth century. It was through this exegetic bias that certain disciples of Hegel, and not

always the least interested, ended by quitting the theological groove.

But without dwelling on the mixed doctrines of Krause (1776-1841), and Herbart (1781-1832), who belong substantially to the classic spiritualistic school, and with a passing reference to the introduction of Spinoza into Germany through Herder and Goethe, which marks the starting-point of the various subsequent combinations of pantheism, idealism, and the Leibnitzian dynamism, let us proceed to a rapid survey of the deviations of idealism.

Fichte enjoys a great reputation, and posterity preserves the recollection of his noble character, of his patriotism and devotion to the principles of the French Revolution. But his philosophy has already been forgotten. The immediate but unfaithful disciple of Kant, he retained of the master nothing but the pretended irreducibility, the absolute and independent activity of the *ego*. The *subject* alone exists; all the rest, that is to say, the universe, and outward things are in themselves void of all reality. The *ego* is conscious of nothing but its own modifications. A few propositions, quoted as a matter of curiosity, will serve to show the amount of obscurity in which the German mind delights to involve a conception at once so superfluous, and, after Heraclitus, Democritus, Berkeley, Hume, &c., so unoriginal.

"The *ego* lays down primitively and absolutely its own existence. The *ego* opposes to the *ego* an absolute non-*ego*. The *ego* and the non-*ego* are both laid down by the *ego* and in the *ego*, as reciprocally limiting and determining each other"

"In the *ego* I oppose to the indivisible *ego* a divisible non-*ego*."

"It is evident that we can have no external senses, because we perceive nothing external. . . . Light is not external to me, for it is I who am the light." (Jules Soury, "Encyclopédie Générale," i. 524.)

Still it is difficult to dispense with the outward world, and Fichte remembers somewhat tardily that it is necessary to establish its reality. For this purpose he reaches from Kant's practical reason, and moral law, the help that Hegel sought for in the

divine veracity. Common sense, right, the social relations, compel him to admit other egos similar and external to his own—in a word, the reality of the non-ego in its totality. How then is idealism to be saved? By making it, not subjective as before, but objective. The absolute infinite ego is no longer the human ego, but God. "The universe is God placing himself in thought without, though still within, himself." The human ego, issue of God, living in God, reproduces in itself the divine ego "by means of the intellectual intuition." This bathos leads directly to mysticism and ecstasy, which Fichte failed to avoid.

In its objective phase Fichte's idealism takes with Schelling (1775-1854) the name of the *absolute identity*. "The ego is all." The *absolute*, which is equivalent to the universality of things, and in which are identified nature and the mind, the real and the ideal, subject and object, is the primordial unity, the Sphairos, Brahma, the naught that becomes all, the perfect indifference between the subjective and the objective. Nevertheless this impersonality, this inconscient, must still be conscious of itself, for the evolution of the absolute creation is an act of *eternal* consciousness. In fact, if the absolute had no self-consciousness from all eternity, what occasion would it ever have had to acquire this knowledge? But then what becomes of the primordial indifference? And on the other hand, having eternal consciousness of itself, how does the absolute manifest itself without consciousness in nature and with consciousness in the mind? Let it suffice for us to know that it presides at the evolution of the mind, is identical with that which develops nature. *Identity* is not strictly speaking the cause, but the totality, the essence, of all that exists.

As all is in all, in order to explain the universe man need but listen to his own thought. For what is in fact to know? It is to discover within ourselves by intellectual intuition the divine dialectic, it is to reproduce in ourselves the eternal act of knowledge, it is to recognize the object in the subject. Science is innate in the mind, and there is but one, the science of the absolute, under two parallel forms, transcendental, theoretical, practical.

and æsthetic philosophy and the philosophy of Nature, or speculative philosophy.

Identity, which verges on the pre-established harmony of Leibnitz, is the connecting link of the two philosophies. Teleology results from the perfect agreement between the conscient and inconscient activity of the absolute. Beauty is the infinite represented in the finite. History is also the absolute revealing itself progressively by Destiny, Nature, and Providence.

The most extravagant part of this doctrine is the *speculative* physics, from which experience is banished unless it yields submissively to the vagaries of metaphysics. It is curious to find it occasionally forcing itself on the imagination of Schelling, and to meet with a few fragmentary truths, stumbled on casually, arresting in their flight the chimeras of the absolute.

Matter, or gravity, one and homogeneous in itself, is the expression of the absolute in the first degree. As it represents the infinite magnet, and as the finite magnet is iron, it follows that all bodies are metamorphoses of iron. In its second degree the absolute is light, essentially homogeneous. "Thus vanishes Newton's solar spectrum." It is light that constitutes thought. Lastly, in the third degree of the absolute identity the organism combines gravity with light. As primitive as is matter itself the organism does not proceed from it. "Organic nature is not the outcome of inorganic nature." It differs from, though identical with, it.

Three forces—light, electricity, magnetism—aided by three organising forces—those of expansion, suspension, and gravitation—constitute universal nature. The inorganic world is ruled by chemical, electric, and magnetic action, three degrees of one and the same force; the organic world by three degrees of another force corresponding to the first three: productive force, irritability, sensibility.

Thus it is that the Leibnitian dynamism, further distorted by a systematic contempt for experience, resumes the ascendant over German thought. Kant himself had not extirpated it with his speculations on the living forces, on the repulsive and attractive forces, and Nölen has very ingeniously detected the thread that

connects the critique of the Königsberg thinker with the naturalistic metaphysician of Hanover. But it is but just to add that neither Kant nor Leibnitz would have relished the incoherent reveries of their faithless successor. Like Fichte, Schelling ended in mysticism and theosophy.

The work of Hegel (1770-1831) is a sort of logical counter-point, applied to the principle of absolute identity. The apparent exactness of the system, the grandiloquent terms reviving the most antiquated and erroneous ideas, the vastness of the field embraced in his speculations, the bold and imperturbable confidence of the professor and the writer, and still more the metaphysical bias of the German mind, sufficiently account for the amazing success and prestige of Hegel. At the same time the endless contradictions contained in this pretentious logic, the falseness of axioms running counter to all experience, the emptiness and uselessness of his starting-point have rapidly brought about a fall as deep as his fame had been exalted. But though the school has been dispersed and the doctrines have vanished, they have left behind them certain baneful influences, that have tainted the mind of several generations. The eclectic and romantic schools of France have shared in the contagion.

For Hegel, as for Schelling, there is an absolute and fundamental identity between the human mind and the divine reason. The mind finds within itself, and apart from all experience, an abridgment of the development of the absolute, a faithful image, according to which it traces *à priori* the plans, the episodes, and the personalities of the eternal tableau. All *à posteriori* verification by means of experience is of course beneath the consideration of science. The process of thought is the process of the absolute itself; its method, or logic, is science itself; the laws of the mind are the laws of the universe; whatever is rational is real, and nothing is real except the rational, the *idea*. The absolute is ideal; the *idea* is the substance; Spinoza's unextended has no further need of support; it is all things, man and God. We already know what sort of structure such premises are capable of sustaining—a science apart from and beyond all true science.

an edifice reversed summit downwards, *bombymans in vacuo*, in a limitless void. Such is Hegel's *Encyclopædia*.

Brahma, the one of Parmenides, the *νους* of Anaxagoras, Aristotle's *λογος*, the absolute, the pure being, undetermined, concrete, identical in itself with the non-being, in a word, the idea, is developed by the immanent dialectics in three epochs. The universal order is presided over by the holy triad, whose various religious trinities are merely defective, though respectable symbols.

FIRST EPOCH.—The *idea in itself* (a power in the state of evolution, antecedent to being and to non-being) is the object of logic. Logic is divided into three parts: (1) Theory of the *being*, which from the *being* and the *non-being*, suitably contrasted, evolves the idea of the *werden*, that is, of the transition from non-being to being, whence proceeds existence, being self-subsistent, through a series of determinations or negations by means of the categories of quality, quantity and measure; (2) Theory of the *essence*, considered as the foundation of existence; (3) Theory of the *notion* (*notion as such*, judgment or separation, conclusion), which, realised in the conclusion, is the *object*. Passing through the mechanical, chemical, and teleological phases, the notion identifies subject and object, and under the name of idea traverses life, takes consciousness of itself and returns to its pure form—the absolute idea.

SECOND EPOCH.—The idea, coming out of itself in virtue of a contradiction, the germ of which it contains within itself, and becoming the *idea for itself*, realised, in the state of evolution, gives rise to the *Philosophy of Nature*. In the necessary process of nature there are three moments to which correspond three sciences: (1) Mechanics; (2) Physics; (3) Organic physics, comprising the terrestrial world, the vegetable and animal kingdoms. Hegel's Nature, like that of Heraclitus, aspires, through the vicissitudes of a perpetual accident, to the primordial unity, to the absolute naught. Summed up in one word, spirit in its beginning, its aim, and its end.

THIRD EPOCH.—The idea in itself, for itself, reverts through itself by a series of affirmations, negations, and affirmations, to the absolute.

theses, and syntheses. The three stages of its return are: The subjective spirit, the objective spirit, the absolute spirit, a triple science with three degrees constituting the *Philosophy of the Spirit*. (1) To the *subjective spirit* correspond *Anthropology*, or the study of the soul; *Phenomenology*, which treats of the spirit *for itself*, or consciousness; *Psychology*, which considers the spirit *in itself*. (2) The *objective spirit* is realised in morals, right, the family, society, and the State. (3) Lastly, the *Absolute Spirit* finds its objective form, its sensuous intuition in *Art*, whether material, symbolical, or Oriental; whether sensible, classic, or Greek; whether spiritual, romantic, or Christian. Its objective form is represented by sentiment, by *religion*, which by rising from nature to God, reaches its apogee in Christianity or absolute religion. The supreme stage of the *absolute spirit* is the point where converge the subjective and the objective, that is, pure thought, the object of *philosophy*. The history of philosophy is the history of the evolution of the absolute, realised at last, observe, not by the French eclectics, but by the unparalleled genius who has drawn the universe from naught, and reduced it again to naught, in a word, by Hegel!

It would be useless to show how this monstrous hallucination harbours the quintessence of anthropomorphic infatuation. It is obvious enough that the Hegelian absolute is human reason transformed to the universal and creative reason. It is in fact the same tenuous illusion that we have met in all the mythologies, in all the metaphysics, under all latitudes, in every time and clime. But in Hegel's nihilist pantheism there is something more than the ordinary consequences of pantheism. We here detect a sort of shuffling duplicity, which perverts affirmation by negation, balances the true with the false, plays off right against wrong, reconciles them all in indifference, and establishes the "identity of contraries." It is the acetye blowing hot and cold at once.

"In the dialectic whirligig of the absolute *worden*" one assertion is as more true than its opposite, because being is identical with non-being. Good and evil, right and wrong, are mere gradations; the relative in which we live has no substance. The dialectic has

and the gnostics at least proclaimed the indifference of works, whereas to right and morality Hegel awards a respect belied by his implicit negation of the individual, of the human person.

His *werden*, in which some writers have pretended to discover the law of progress, though it ends in naught, is merely a necessary concatenation transformed to a legitimate and excellent order. But necessity, which is real, has nothing to do with justice, which is a particular conception relative to man. This false view of progress without a gap, this optimist theory of evolution, in which the consequent is always superior to the antecedent, has been transmitted by Hegel to Auguste Comte. Accepted in its strict sense it justifies all reactions, all successful acts of violence, all triumphant crimes. Nothing at first sight more liberal than this absolute idealism; nothing in reality more favourable to all despotisms whatsoever; nothing more accommodating to all the concessions granted by authority to freedom, concessions in which all the advantage lies on one side. Herein Hegel has been the master of the French eclectic school, of those lovers of moderate liberties profitable to themselves, of those partisans of all authority which consults their interests, and in which they have a share.

Hegel's religious theories involve the most glaring contradictions. He asserts on the one hand that all positive religions have had their special mission and have possessed a degree of truth, while on the other his determinist and nihilist pantheism suppresses all religion, substituting in its place the philosophy of the absolute. Nevertheless he proclaims that *absolute Christianity* is the supreme expression of the religious sentiment. Observe, however, that of Christianity as understood by us he leaves nothing but the essence, a something, one knows not what, equivalent to zero, what M. Renan, for instance, will call later on the sentiment of the divine. On Hegel, no less than on certain Protestant sects, falls the responsibility of those genuine and extremely convenient hypocrisies under cover of which respectable business safeguard their position in Christianity, in that vague and unendurable religiosity, the state and governing feature of all despotic religions. The present age is charged with its philosophy and vapours. Some thinkers, the

new Christianity, religious office of the Positivists, Neo-Catholicism of Bordas or Buchez, and the perfect God who does not exist, the category of the ideal, not to mention "*the eternal axiom*" uttered in immensity (Taine)—all so many metaphysical residues, the subtle miasma of which has been diffused by the breath of Hegel throughout the atmosphere of modern thought.

"It is now some twenty years," said Goethe, "since the Germans have been building up transcendental philosophy; should they at any time become aware of it they will perceive how ridiculous they have made themselves." The death of the *charlatan*, the *mountebank*, dispelled the delusion. Official idealism and its three high-priests, Fichte, Schelling, and especially Hegel, were overwhelmed with something more than Teutonic sarcasms. The contradictions inherent to their teachings broke up the school; reactionists on the right, conservatives in the centre, the left, and the extreme left, presented to the audience a laughable spectacle of their dissensions. It was especially the exegetic writers, the religious critics, Strauss, Bruno Bauer, Feuerbach, all disciples of Hegel, who by a rigorous application of the master's ideas, brought their emptiness into full relief. Strauss, by dint of seeking the ideal Christ (in his "*Life of Jesus*"), found in his last years nothing but a sort of unctuous atheism. Bauer's "*Critique of the Gospel History*" strikes a tremendous blow at theology, while Feuerbach unfolds with a marvellous clearness the "*Essence of Christianity*" (1841) and the "*Essence of Religion*" (1849). In his eyes all legends are equal, being merely the various expressions of anthropomorphism—man worshipping himself in his gods. In the name of the *Absolute Identity*, which realises the divine in the human spirit, Feuerbach proclaims the man God, and reduces religion, all religion, to devotion to mankind.

Henceforth we pass from the fanaticism of traditional faith to the fanaticism of negation. The terms Christian and Anti-Christian cease to have any meaning. Arnold Ruge, hunted down from city to city, and taking refuge in France, preaches the return to the pure science of nature and man. "It is not enough," he said, "to struggle against religion; we must either forget or

raise ourselves above it." This is what was done by Max Stirner, who, relegating humanity itself to the old pantheistic mythologies, grappled with Kant's metaphysical ethics, and for the pretended general laws *a priori* substituted interest and individual right. Lastly, with Moleschott, Vogt, and Büchner, scientific observation resumed possession of philosophy. The old materialism, ever young because ever abreast of acquired science, made a brilliant return to the region of the ideal. But it would be a mistake to suppose that its triumph is already permanently insured. On the contrary, it begins once more to lose the ground it had apparently conquered; it yields to the combined efforts of Kant, Leibnitz, and Spinoza. While perhaps for the first time granting it the favour of an impartial hearing, while vindicating it from baseless charges, and proclaiming the services it has rendered to science and humanity, its historian, Lange the Idealist, still refuses to recognise in it anything more than an approach to higher truths, to conceptions of the speculative order. The German mind, notwithstanding its powers of strict observation, does not rest satisfied with experience pure and simple, but shows a disposition to enter into a sort of compromise with metaphysics. This middle term, which it calls *monism*, is nothing in itself but an attenuated form of idealism. But the history of this fresh reaction must be traced farther back.

Amongst the most zealous opponents of those whom he calls "the three sophists" there were none more gifted or more violent than Schopenhauer himself (1788-1860). "Dilute a minimum of thought," he says, "sufficiently to fill five hundred pages of sickly philosophy, and trust for the rest to the truly Teutonic patience of the reader. . . . A radical defect of the German temperament consists in seeking in the clouds what lies at their feet. Utter in their hearing the word *idea*, which to an Englishman or a Frenchman presents a clear and precise notion, and they are at once ready to start in a balloon. . . . The chief cause of the extreme flattening of the brains was Hegel, a moderate intellect, who by every known means endeavoured to pass for a great philosopher, and who succeeded in assuming the attitude of an

idol before some very youthful minds, at first unduly meddled with, and ever since hopelessly muddled."

Schopenhauer had travelled and read much. He admired Chamfort, La Rochefoucauld, Helvetius, Cabanis, Bichat, Locke; but Kant was the special object of his worship. In spite of his sensualistic tendencies, his belief in the eternity of the universe and of the material forces, his hatred of empty heads reasoning wildly on the Identity and the Absolute, he begins and ends with idealism; for is not his fundamental proposition: "The universe is my representation?"

But, it may be said, this aphorism would be rejected neither by Democritus, Protagoras, nor Locke; it belongs quite as much to Hume, not to say Condillac, as to Berkeley. Such is no doubt the case; but idealistic scepticism draws extreme consequences from it. "The universe," Schopenhauer concludes, "is merely a mental phenomenon," and he fancies he has weakened this other proposition of experience: "The mind is merely an organic and material phenomenon." Herein consists his illusion.

Like so many others before and after him, Schopenhauer has ingeniously endeavoured to show that without the eye there exists neither light nor colour; without hearing, neither sound nor noise; without touch, neither form nor space. Let us add that without a living and thinking brain, nothing would exist. But as in point of fact, brains, hands, ears, eyes do exist, what have we to do with such hypotheses, truths, if you will? It is enough to proclaim them once for all, after which one fails to see the importance attributed to them. Doubtless the noumenon and the phenomenon, the thing in itself and the relative are introduced. By means of sure scientific processes it is shown that behind our sensations there are combinations and motions producing them, that nothing is such as we see or hear it, that light, colour, sound, are reducible to colourless and mute wave-like motions, that bodies are ever being decomposed into various substances indefinitely subdivisible. But it is forgotten that all these discoveries of experience are due to the human senses and organs aided by instruments which they have created. We forget that such discoveries suppress nothing of

what they explain, and that they do not diminish by a single atom the substantial reality whose motions produce our impressions. The Leibnitzian sufficient reason, appealed to by Schopenhauer, in its ultimate analysis is nothing but the metaphysical expression of this unassailable certainty.

Had Schopenhauer confined himself to repeating the sceptical formula: "Man is the measure of all things," we might have left him in peace to his somewhat superfluous attempts at reconciling the objective and the subjective. But of a proposition whose sense he perverts, he makes the foundation of a system quite as illusory, quite as anthropomorphic as those of "the three sophists." To aver that our organs are the instruments with which everything is measured does not constitute man the *guardian* of the universe, nor make his faculties, conditioned by his organism, the common property of the whole world. But such is the error of the idealists. For Schopenhauer the ruling faculty, the essence of man, is the will, which is the universal essence, the thinking substance of Spinoza, the monad of Leibnitz. There are two worlds—appearance and absolute reality. Between both, "between the unity of the will and the individuals in whom it manifests itself," hover certain types, the *ideas* of Plato. "The will, as the principle of all things, slumbers in the rock, awakens in the plant, becomes fully developed in man." Poetry may indulge in such metaphors, provided it is not beguiled by them; but it is difficult to see what philosophy can gain from them. We know very well that the will does not slumber in the rock, that the contractility of certain vegetable organs is not will, and that will exists only in sentient organisms. Either words have a definite meaning, or else language becomes mere logomachy.

Schopenhauer's famous pessimism has no more to do with his doctrine of the will than has his idealism with his initial scepticism. Anyhow, good and evil being relative and variable sentiments, absolute optimism and pessimism are terms possessing no scientific value. Here we meet with a Buddhist, a mystic atheist, who has strayed into the age of action. "What is life? A material not worth its cost; a hunt in which hunters and hunted wrangle in

turns over the shreds of some loathsome quarry; a warfare of all against all, an anticipated death, said Parmenides; lastly, a sort of natural history of pain thus summed up: to will¹ without a motive, to suffer and struggle incessantly, and then to die, and so on for ever, or until the crust of our planet crumble to atoms." Salvation must be sought in the *nirvana*; liberty must be acquired by justice and universal compassion; in man the selfish and individual sentiment must be suppressed; lastly, not this mortal body, but this will must be killed, which animates and relentlessly condemns it to suffer. We have long been familiar with such morbid ascetics so ably utilised by Christianity. One word for all: to suppress the will is to suppress the universe, as Schopenhauer will readily admit. But is it not also to suppress philosophy at the same blow? Schopenhauer does not gainsay it.

The *Unconscious*, which has made so great a stir in Germany, is nothing more nor less than Schopenhauer's *Will*. We cannot here enter into the controversy between Frauenstadt, the immediate disciple of the master, and the heterodox Von Hartmann. The latter changed the name of the *Deus ex machina*, of the universal square root, which he attempts to extract by new processes, employing for the purpose nothing but minute and strict observation. But after all this scientific labour, which is moreover called in question by savants, his wearisome researches leave him nothing but an entity, an illusion, a term perverted from its meaning, a recent adjectival formation elevated to the rank of an eternal and universal substantive.

By showing the fallacy of the starting-point, by putting our finger on the emptiness of the principle, we shall make short work of the consequences.

Von Hartmann has discovered, as anybody else might have done, that the conscient state belongs exclusively to certain living organisms, and that, relatively to this superior state, the term *unconscious* may be applied first of all to the motions and combinations of the inorganic world, and then to many and important actions of organised beings. Not only are all the functions of animal life unconscious, but even sensation, that is to say, the

conscient state, is preceded and formed by innumerable unconscious impressions. In his "Phenomenology" he passes in review all the facts produced apart from conscience and which escape its jurisdiction. He forgets one point only, that is, that the distinction between the conscient and unconscious is merely a view of the conscience, that conscience is its necessary condition.

These correlative terms, the second of which flows from the first, correspond to no reality outside of the human intellect which employs them. Man discovers in himself a special quality, of which objects are absolutely destitute; and it is this absence of a quality, this negation, that Von Hartmann constitutes a being *par excellence*, a *One-all*, at once substance, principle, and end. The unconscious is will, infallible wisdom, imperturbable activity, continuous creation, and foreseeing demiourgos. It does not think, but is the essence of thought, the virtuality of consciousness; it is spirit, it is *supra-conscient*. The unconscious explains everything—the formation of worlds, gravitation, the dawn of vegetable and animal life, the organism, instinct, reflex motion, speech, sensation, thought, in a word, the adaptation of all means to all ends. In fact it explains everything except the unconscious itself, which neither takes from nor adds anything to the reality of facts and things. But there is still something, for he adds *final causes*, and it is precisely this old chimera, by which he is beset, that compels Von Hartmann to have recourse to the Unconscious. Thus all the mystery is revealed.

Hartmann's metaphysical system, as eccentric as it is superfluous, ends in a compromise between the optimism of Leibnitz and Schopenhauer's pessimism. The infallibility of the Unconscious has on the one hand been unable to produce the best possible of worlds, while on the other, conscience, the logical idea, reason, make it evident that it is a wretched world. What is to be done? Man aspires to happiness, and where shall he find it? In a return to the Unconscious. But the way thither? Here the philosopher is plunged into a maze of contradictions. The will is the soul of the Unconscious; hence the will is the cause of the whole *progress*. It is the will that has become *individualised in particular wills*:

from it proceed sensation, understanding, reason; and yet these superior forms of the Unconscious are destined to misery. Strange result of the supreme wisdom, of the eternal and active foresight! Its work must be undone, and while awaiting the hour of final redemption, of the complete absorption of things and beings in the naught, the individual will must be suppressed, must be confused in the general will, and Buddhist detachment must be combined with Stoic virtue. This structure daringly erected on the void is thus crowned by a sort of religious atheism.

Nowhere else is it possible better to realise the imperceptible deviation that leads from experience to metaphysics. All that is needed is some preconceived idea, which in this case is found to be *finality*, and some intermediate entity charged with the function of connecting the realities with their ideal *raison d'être*. This function has fallen on the unconscious, which cannot help itself in the matter. At heart Von Hartmann is a materialist, who has endeavoured to make himself an idealist. He might well have employed more simple processes, for it might have sufficed to render all forms void, and reduce nature to a sort of geometry suspended in space. This is what was done by Descartes, and if the operation is superfluous, it is at least harmless enough, for the ideal measure thus constructed must needs coincide with the reality. The modern English savants, Huxley amongst others, unable to get rid of certain scruples, have shown a partiality for Descartes; nor could they be blamed for so doing, provided it was Descartes the mechanist rather than Descartes the metaphysician of the divine veracity.

In Germany it is Kant that the scientific world appeals to, and although he is a less reliable guide Kant has still his experimental aspects, while his cautious scepticism may protect his more liberal-minded disciples from the vagaries too familiar to the Teutonic intellect. He may teach them, if they will, to dispense with the thing in itself, the inaccessible noumenon, and rest satisfied with the phenomenon, which is the reality.

Other influences also, those of Spinoza and Leibnitz, very perceptible in Hartmann and Schopenhauer, have had their share in the direction of Germanic thought, and have brought about a fusion

of the monad and the substance, at once expansion and thought. All is indissolubly matter and spirit. But there are gradations in this conception, and according as idealism or materialism predominates it is the *spirit* that becomes the *essence* of matter, as with Spinoza, Leibnitz, Hartmann, or else matter becomes the *substance* of the spirit. Haeckel and the Darwinians seem to adopt this view, which at first sight accords perfectly well with the experimental method. But in this *monism* there is still a residuum of metaphysics, a vague affinity with the idea of design, whether unconscious or preconceived, which the theory of evolution might tend to countenance. Hence the necessity of being on our guard against a return to the virtualities and powers, against the anthropomorphism of language; else we may fall into the error of attributing life and thought to all nature, independently of the particular conditions under which life and thought are developed. On the aggregate of material elements, an aggregate which is a general conception of the mind, we might confer properties belonging to certain combinations only of some few of these elements. Thought exists only in the individual, and the individual is a determined and finite organism. Life, which is a condition of thought, is but a passing state of certain bodies. Neither does thought outlive the person, nor the person the living body. To say that life and thought belong to the impersonal, and *vice versa*, that matter possesses them potentially, is not only to overstep the limits of experience, but to contradict it.

Monism is to science what pure deism or pantheism is to philosophy—a succedaneum, an extreme dilution of metaphysics, but still metaphysics.

§ 6.—*French reaction against the spirit of the eighteenth century.*
 * *Ecclecticism. Return to Objective Philosophy: Positivism.*
English Associationalism: Stuart Mill—A. Bain—Herbert Spencer. Conclusion.

One more stage, and we shall have finished our journey across the systems. Rationalism and its varieties have for a long time

had nothing to teach us. It has ever been "the same note, the same entertainment," from the days of Parmenides and Anaxagoras. Philosophy has two poles, materialism and idealism, between which rationalism oscillates, more or less strongly attracted or repelled according to the individual temperaments, the state of the sciences, the authority of the masters, the fashion of the times. If the truth lies between the two, French eclecticism has discovered it. But *in medio virtus*, a maxim doubtful in morals, has no place in philosophy. Besides, eclecticism is a treacherous rallying cry, and the school of Royer-Collard, of Cousin and Jouffroy, has borrowed nothing from scientific experience. It has confined itself to metaphysics, and from amongst the doctrines claiming to apply to the universe the laws of human logic it has selected certain moderate and "respectable" truths, compatible with a prudent moral, religious, and political system. Its true name is *trite spiritualism*; its true text-book might be the *Savoyard Vicar's Profession of Faith*, enriched by notes and commentaries after Socrates, Plato, Aristotle, Zeno, Plotinus, Proclus, Augustine, Thomas Aquinas, Descartes, Bossuet, Fénelon, Kant, Schelling, Hegel, Balmes.

We are familiar with all the elements of this official philosophy; we have already met, defined, discussed them a hundred times: the immaterial soul and its faculties, the immortal soul and its destinies, the universality and necessity of general ideas, the sovereignty of reason, the existence of a personal God—all-powerful, all-good, all-just—rewards and punishments deferred to the after-life, the agreement of philosophy with religion. All this tells us nothing of what we want to know, nothing of the universe and man. Hence these commonplaces of spiritualism may be left to the schools and the faculties, the more so that the doctrine has outlived itself some twenty years or more. In vain has an undue share been awarded to it in the distribution of university honours, in order to inculcate its principles on new generations. It will all the more surely end by becoming the harmless subject of academical essays. When Taine wrote his "French Philosophers in the Nineteenth Century" (1857), people were still disputing about direct sensation, aperception, internal observation. The brilliant

critic infuses a certain warmth into his refutations; one feels that he has read his authors, that he has understood and occasionally admired them; he follows them step by step, driving his arguments home, interesting himself in the issue of the combat. Taking up his work again, we recognise the same merits in it, but it no longer produces the same lively impression on us that its first perusal had done. The questions have grown cold, the embers have died out; men and doctrines have passed away! Royer-Collard's solemnity, the depth of Maine de Biran, Victor Cousin's eloquence, Jouffroy's worth and sincerity, the impartiality of Damison, Adolphe Garnier's judicious analysis, &c., have become archæological topics, and we prefer to accept them on trust than to go and judge for ourselves. It may be questioned whether, outside the strictly professional ranks, a single graduate leaves the French lyceums whose fate it will ever be to open a volume of those philosophers.

Without entering into a critical examination, which would involve perpetual repetitions, we shall cast about for the causes that brought the French mind back to the mitigated metaphysics of eclecticism; for those that have insured the triumph and prolonged the influence of sentimental rationalism; lastly, for those that have shaken and ultimately overthrown its empire.

Orthodox spiritualism, which prevailed from 1815 to 1848, was a reaction against Condillac's official ideology, but still more against the scoffing unbelief and materialistic tendencies of the eighteenth century—a disavowal of Voltaire, of Diderot, and the *Encyclopædia*. It was a recoil that drew with it men of all classes and of all parties indiscriminately—representatives of religion, letters, and science; liberals, conservatives, and radicals in politics; matter-of-fact citizens and dreamers alike. Everything combined to bring about the momentary triumph of spiritualism; the very circumstances, ideas, and aspirations ultimately destined to check and arrest its further development. Such is generally the case with all widespread movements of thought.

The more immediately determining and accessory causes of the phenomenon were the part played by the doctrines of Rousseau in the Revolution, the fall of the first republic, and the misapprehen-

sion of the causes which brought about that disaster, the unsettled state of the public mind, the deplorable return of the old *régime* under Bonaparte, the senseless and dangerous concordat, the reappearance of the privileged classes on the scene, Chateaubriand's false and childish Christian aesthetics. It happens with peoples as with individuals, with the mind as with the body. They are laid prostrate by disease; great crises, loss of blood, leave them in a weakly state, liable to become a prey to the idle talk and incoherent dreams of dotage. Whilst savants like Laplace and Lalande remained faithful, even in their most daring flights, to the results of experience, the majority of French thinkers yielded to the vagaries of spiritualism. Even the successors of Condillac began to suspect the method of the master; or rather found in the inconsistencies of Locke and the sensualists enough to satisfy the requirements of the deism and rationalism then in vogue. In point of fact neither Locke nor Condillac denied to the soul and to God an immaterial existence, and both remained faithful to Christianity. Laromiguière, an ingenious and subtle teacher, a moderate and cautious intellect, had little difficulty in again quietly introducing metaphysics into the curriculum of the schools, though his compromises appeared inadequate to the Jansenist Royer-Collard.

This illustrious orator possessed all the qualifications needed to become a liberal and enlightened centre of thought, a resolute and upright guide in the struggle between the parliament and absolutism. He was a worthy representative of that middle position in theory and science which constitutes common sense, and to this he added the prestige of his personal influence. But common sense seldom rises above the commonplace, which is the soul of ethics and the treasure of eloquence. Royer-Collard was accordingly predisposed to accept a cut-and-dry philosophy, solemnly dogmatic, convenient and approximative, practical and intermediate between a reasonable religion and a rational moral system, conceding something to apparent experience, little to mysticism, much to reason. All these conditions were found united in the psychology of the Scottish school. Suddenly entrusted with the chair of

philosophy, Royer-Collard, Taine tells us, had the good luck to pick up a copy of Reid at a bookstall on the quays. But there is perhaps ground to regret the fifteenpence the book cost him, and the three years' course of lectures that he contrived to draw from it. What may not the power of language do ! Royer-Collard's exposition, with its clear arrangement and vigorous style, relieved by noble images and concise expressions, and animated by a genuine conviction, carried away his French audience, ever sensible above all to the charms of diction.

"Time and space contain in their ample bosom all finite existences, and are themselves contained in none. Time is everywhere and space is coeval with it. Each dwells entirely in each several part of the other."

"Duration is a mighty stream, which does not hide its source, like the Nile, in the wilderness, but which has neither source, nor banks, nor mouth. This river flows within us, and in ourselves alone is it possible for us to observe and measure its course."

"Man may not be parcelled out ; no share can be granted to scepticism. Once it penetrates the understanding, it usurps its whole domain."

Right or wrong, these were fine phrases, which any writer might be proud of penning, and which will doubtless always find a place in the collections of choice pieces. But notwithstanding his appeals to internal observation, Royer-Collard's philosophy is quite external. That of Maine de Biran, more individual, more original and chimerical, is abstruse and recondite, but none the less hollow. Maine had begun with sensualism and the comparative study of facts. His "Treatise on Habit" is the work of a careful observer ; but according to his votaries, it is not the book that makes him one of the masters of modern metaphysics. Withdrawing from the world, he plunged into the *ego*, and discovered its essence ; this essence is a force, this force is the will, the will is the monad. Leibnitz, Fichte, Schopenhauer, Hartmann, arrived all of them at much the same conclusion ; nor need we dwell upon such familiar formulas as : "Beings are forces, forces are beings ; nothing really exists except simple beings as forces ; they are accordingly the real

existing substances All efficient causes, in the physical order itself, are immaterial forces."

Such an idealism overstepped the limits of eclecticism. It excited simple wonderment at the time, and may now be neglected.

The great mind of this school, as we know, was Victor Cousin. He spoke and wrote much on the philosophy of others, but he was himself no philosopher. He is reported to have discovered a subdivision in some minute branch of conventional psychology. But his eclectic conception, inspired perhaps by Hegel's ideas on the history of philosophy, was not calculated to advance the science. It is no discovery to tell us that many thinkers have bequeathed interesting or judicious theories to posterity, or that it would be profitable to collect this inheritance before adding to it. Nor has Cousin remained faithful to his own principle. Of the four tendencies he has superficially attributed to the human mind—spiritualism, sensualism, scepticism, mysticism—he himself yielded to scarcely more than the first and the last, in which he may have been justified personally but not as a consistent eclectic. We know that, after having in his youth coquetted with German pantheism, he returned later on to Descartes, not to the daring mechanician, but to Descartes's metaphysics arranged by Malebranche, emended by Leibnitz, after which, retracing his steps back to Plato, he kept to the middle term of Christianity, dying a Catholic. During his rule, one might say his ministry, he composed a "Catechism," a real orthodox catechism—"What is God?" and the rest of it. He was about to publish it, to the great delight of Sainte-Beuve, when an unpardonable oversight was discovered. This clumsy novice had actually forgotten the chapter on Purgatory! But what now remains of the great charmer? His lectures? Who will ever again read them? His numerous essays on the history of philosophy? They have long been out of date. There remains his translation of Plato, on which his hapless amanuenses have spent much useless labour, and a collection of commonplaces on art and morals, "The True, the Beautiful, the Good." But let us not be ungrateful. He had a splendid library, which he was generous enough to bequeath to his country.

This is not the place to speak of his erudition, minute rather than comprehensive and enlightened, and which, troubled by senile and posthumous loves, produced nothing but tedious historical romances. His studies on some episodes of the Fronde, from which he contrived to extract three contributions for the "Journal des Savants," for the "Revue des deux Mondes," and for the book-trade, will be occasionally consulted by the curious, but cautiously. His style and diction have been excessively vaunted. By dint of much practice he succeeded in speaking and writing the French of the seventeenth century like his mother-tongue. He was an excellent pupil and passed master. Posterity will prefer to accept this judgment pronounced by his contemporaries rather than take the trouble of testing it. Taine, who has read Victor Cousin's writings, distinguishes between his philosophic and his purely literary style. The first is at once obscure and brilliant, the second noble and uniform. His oratorical powers dazzled his audience; the enthusiastic pupil withdrew fancying he had understood; later on, when reading the lecture so much admired at the time, he doubted whether the master had understood himself.

The school of Royer-Collard and Cousin, with which may be grouped many dissidents who have fancied themselves innovators, doubtless includes many sincere thinkers, well-informed men, liberal rationalists, amongst whom we may willingly mention the honest Jouffroy, Saisset, the most enlightened of all, Garnier, Franck, and Paul Janet. The works of these writers have not been read without profit. But when we remember that they have not advanced the science of man and his relations with the universe, that is, of philosophy, a single step, we shall the less regret the necessity that obliges us to leave them in the shade. We have long exhausted the critique of spiritualism and can indulge in no further repetitions. But repetition is the characteristic feature of nearly all systems in any way arising out of eclecticism, whether favouring, opposed, or indifferent to it. Before resigning itself definitely to scientific experience this century would seem to have undertaken the task of reviving, and to the best of its

power adapting to the present scientific, political, and social state of the world, all the formulas and artificial moulds which it has found in the perplexing inheritance of the past. It has devoted the same labour to the whole philosophic cycle that the Greeks and Romans did to Aristotle, Plato, Pythagoras, or Pyrrho. It has adopted as its motto the old prefix *neo*. We have had the neo-Christianity of Bordas and of Buchez, without mentioning Saint Simon, the idealistic neo-scepticism of Vacherot and of Renan, the neo-Kantism of Renouvier and Pillon, the neo-Hellenism of Louis Ménard. Metempsychosis, the triad, pantheism especially, have beguiled Ballande, Pierre Leroux, the humanitarian Jean Reynaud, the star-gazer Lamennais, George Sand, and how many others! Sentiment or reason everywhere—observation nowhere. Even Proudhon's atheism is but an outcome of logic. All these thinkers, whose originality lies rather in themselves than in their systems, belong far more to the history of the nineteenth century than to that of philosophy. Doubtless their various heterodoxies have all tended to bring about the discredit which every day more openly threatens academical orthodoxy. But the fall of eclecticism will in no way benefit them. They may succeed in banishing it from the schools, but the faculties will still be invaded by idealism, criticism, monism, which however will be restricted to that sphere. Mind must be sought for elsewhere.

While Vacherot is engaged in proving that the idea of perfection is God, but that perfection has no existence, while Renouvier is learnedly discoursing on the uncertainty of knowledge, and on the certainty of the ego, which acquires this knowledge, the great army of thinkers is marching towards the objects of knowledge, and, by learning, asserts its claim to knowledge. It advances as did Diogenes, and it is indifferent to the taunt that this is an inferior method suitable only to those who are devoid of "the philosophic spirit."

How is it that the theories enunciated by so many earnest, competent, profound thinkers have not and never will have the official authority still enjoyed by eclecticism? Because being less superficial they are less readily grasped—because, being more

subtle, they are also more chimerical, or, as is now said, less practical.

In the first place eclecticism is a compromise between all the ideas, usually false, which are called *mean truths*, between all the prejudices which constitute *common sense*, and are not opposed to *good sense*. In the second place, if in the study of man eclecticism leaves the least share to experience, it at least leaves the universe to it. Without dwelling unreasonably on preliminary scepticism, it admits the legitimacy and certainty of knowledge in the experimental as well as in the metaphysical domain. Its rationalism, reduced to a minimum, presents scarcely any obstacle to science, yielding day by day before it, and claiming for itself nothing more than a little corner in a superior sphere, or rather in one lying outside the ascertained reality. Religion also would be wrong not to recognise in such a theory its most solid support, for, apart from ignorance and devotion, it is the last refuge of religiosity. By its mistaken but affirmative conception of authority and of freedom it becomes compatible with a tolerable social state; it has especially found itself the ally and natural associate of a hybrid government, like itself founded on a sort of balance between mutually irreconcilable *régimes*. Hence it is that the men of the doctrinaire party have eagerly entrusted to it the direction of thought, the education of the essentially conservative and moderate classes, whose children they wished to fashion to their own likeness. And so long as the generations, whose mind it has distorted and enfeebled, shall number a single representative, eclecticism will outlive the government it has ministered to.

The empire of eclecticism, both political and philosophical, has been at once an evil and a good—an evil because, like all moderate theories, it has been exclusive, tyrannical, and often oppressive, because it has done little and hindered much; a good because, being the residuum of all prejudices, the end of all metaphysics, it has kneaded them into a sort of dough, which, though somewhat unsavoury, may still be easily and rapidly absorbed.

The fundamental vice of ordinary spiritualism appears in the words of Victor Cousin, addressed to the youth of France in 1815:

"You ardently love your country. If you wish to save it, embrace our beautiful teachings." This claim to the beautiful, which is not free from a touch of the ridiculous, is the artless expression of a false idea—subordination of philosophic truth to moral expediency, an error proceeding from a series of errors, themselves suggested by a long succession of prejudices.

Here we take leave of a deity endowed with contradictory attributes, personal and infinite, active and motionless, perfect yet permitting evil, supremely free yet shackled by the laws of the universe. Here we also leave behind us a soul immortal because simple, and one, a hypothetic providence justified by the hypothesis of immortality, a psychological and metaphysical mannikin set up and dismounted by an artificial science. Henceforth it becomes a question not of constructing but of studying the universe, not of imagining but of knowing man.

But how slowly this last term, the objective and experimental method, is approached, with how many falls and relapses in the evolution of philosophy! Abruptly interrupted in its progress by the intrusion of the eastern theosophies, clogged for the long period of twelve to fifteen centuries by a mysticism as incoherent as it was oppressive, we have seen it link by link burst its chains, only to be again incessantly soldered together; we have seen it emerge from the foggy mists into which its guides had plunged it, at last gaining firm ground, escaping from the influence of the old terrors and lying hopes, which with a lachrymose voice vainly invite it to return. In this toilsome emancipation the part played by France has been great, greater even than her neighbours have been willing to admit. If by Galileo and Bacon, Italy and England seem to have outstripped her in the path of practical experience and inductive theory, it was in France that nominalism formulated the preliminary and fundamental question against metaphysics, though doubtless unaware at the time of its far-reaching effects. It was here that Montaigne first seriously and impartially studied human nature, that Gassendi revived the tradition of Epicurus, that Descartes constructed for Newton the mechanical explanation of the universe. Then came Diderot and

the encyclopædists, who, leaving the narrow sphere of sensualism far behind, to the direct study of the real world invited all the descriptive and concrete sciences, and not merely the mathematical and abstract or logical as heretofore. A few pages of the "Letter on the Blind," and of "D'Alembert's Dream," tell us more about the intellectual faculties and the general texture of things, than the thousands of volumes piled up by transcendental scepticism, criticism, and idealism, not to speak of common sense, sentiment, and ratiocination.

Lastly, it was France that, in the present century, gave the signal (this time final) of the return to objective philosophy. During the height of Cousin's reign, and heedless alike of eclecticism and its mystic opponents, a French thinker, Auguste Comte, declared that philosophy is the conclusion of the sciences, that it is the experimental conception of the universe and of man. From philosophy he resolutely eliminated both metaphysics and official psychology. Such at least was his starting-point.

It is easy to understand why the metaphysicians and psychologists long affected to despise and even to ignore his doctrine. Later on they naturally charged with incompetence the presumptuous writer, who set aside the very groundwork and substance of philosophy, as conceived by the anthropomorphists. And when they found themselves compelled to discuss the views of Comte, they more or less skilfully availed themselves of the flaws and contradictions in his system. But their trivial and facile triumphs have remained barren, to such an extent that the last champions of metaphysics, Janet and Caro, have banished them to some intermediate world, whence they no longer interfere with "the constant succession of phenomena." The more we advance, the more the thinker is convinced that the universe cannot be invented, but must be studied, that the knowledge of man must be sought for in the different branches of zoology and history. Auguste Comte has come to revive the memory of these truths so simple and obvious in themselves, at a time when they were being forgotten for impotent official systems and fanciful utopias. Herein consists his title to fame and to the respect of posterity. This praise will be all the less suspected that we do not belong to

his school, that we admit neither the pretensions nor the reticences of the system founded by him. But theories are one thing, method another. *Positivism* is a serious and sincere application of the experimental method. To this method alone it is indebted for whatever durable elements it possesses. It is, above all, in any case one of the forms of materialism, and as such it has rendered and still renders to free thought services that cannot be overlooked.

• It will be readily understood that we cannot here dwell upon the religious and theocratic aberrations still so dear to a small but estimable community, upon the Great-Fetich Earth, the Great-Being Humanity, the Virgin Mother, the spiritual marriages, and similar hallucinations hatched in the wearied brain of the master, the fruits of a morbid germ deposited there by Saint-Simonism.* To the same old leaven should also be referred certain chimeras of another order—the universal hierarchy of cities and the government of the proletary classes. But dismissing the high priest Auguste Comte, hand in hand with the Père Enfantin, we need remember nothing but the philosopher, the original successor of Heraclitus, of Ænesidemus, Bacon, Diderot, and Condorcet, such as he appears in his “Course of Positive Philosophy” (1830–1842).

The two pivots of his doctrine are: the conception of a historical, social, and mental evolution; the conception of a general science towards which all the particular sciences have contributed. The object of the system is to establish a perfect agreement between the historic development and the concatenation of the sciences, and thereby anticipate and direct the course of human destinies.

We remarked at the beginning of this work that the law of the three estates—perceived by Vico, Turgot, Kant, and so many others—is nothing more than an approximation to the truth, at once too vague and too narrow; harmless if regarded merely as a general sketch possessing the rudiments of the reality, dangerous when it attempts to confine history within rigid lines. Positivism has erected it into a dogma, which, while amending, Littré still

* When separating from Saint-Simon in 1822, Comte declared with a mournful foreboding that his alliance with the notorious author of the “New Christianity” had been for him “an unmitigated evil.”

upholds: "Not only," he says, "are the three laws not contemporary, but they are even mutually exclusive." But the progress of anthropology and philology often belies this premature axiom, which was in any case as inaccurate thirty years ago as it is at present. It was easy to perceive that theology and metaphysics are inseparable, that both proceed in the same way from anthropomorphism, and that the positive state is equivalent to objective experience. The struggle between the two methods began with man himself, it has been continued throughout history, and we have here traced its vicissitudes. We may perhaps be permitted to believe that it is at last approaching its end. But of this progressive development the last stage is not the positive philosophy, but scientific experience, whence it proceeds and which it attempts to control.

However, as always happens, the disciples have outstripped the conception of the master. Comte expressly remarks that the three ages are not separated by fixed limits, that they encroach continually on each other, and that by overlapping they reciprocally modify one another. Thus they are scarcely ever presented in the pure state. There is no fetichism without polytheism, no religion without metaphysics. In the same way there are no industries, arts, institutions, or society without the positive conception. Nor has Comte overlooked the influence of individual temperaments and ethnical qualities. In a word he handled his theory cautiously and shrewdly until, by his return to fetichism, he lamentably belied it.

History serves as an introduction to positive philosophy. It leads us through the ruins of the past to new ground on which the present and the future must be reconstructed. It now becomes the office of the sciences to trace the design of the edifice. Not that recourse will not still be had to the inheritance of our ancestry for materials and results, of which but too many will be retained. But it will henceforth be necessary to consult the positive sciences which have incorporated them.

Auguste Comte summons them each in its turn, beginning with the simplest, or rather the most abstract and general. The reason he gives for this is that the science, which owes least to experience and most to the operations of logic, must have had the greatest

chance of being the earliest and the best constituted. Hence his hierarchy opens with the mathematical group, which is self-sufficient, and which infallibly deduces the consequences implied in all the numerical, geometrical, and mechanical combinations. To mathematics succeed astronomy, physics, chemistry, biology, and, lastly, sociology. To the series Littré has added a seventh class, comprising æsthetics, ethics, and ideology.

The positivist classification has been assailed on all sides, by the neo-Kantists, the naturalists (Huxley amongst others), and of course by the metaphysicians of the old school. For our part, determined as we are to judge it impartially, we cannot but think that the sciences are so far dependent on each other that they cannot be grouped in brigades and battalions; they refuse to march one by one in Indian file. Still it is useful and convenient to dispose them in some order with a due regard to the general truth and fitness of things. From this point of view the arrangement introduced by Auguste Comte, far superior as it is to Bacon's rough sketch and Ampère's confused table, deserves the respect, and even the thanks of those who refuse to accept it. Its value derives far less from itself than from the truth of which it is the imperfect expression. This truth is the continuity of the universal fabric, the subordination of all beings to their conditions of existence, of the particular properties of the individual to those of the species, class, and order, to which the group belongs. Auguste Comte has restored man to his place in the universe; of the human faculties, institutions, and destinies he has composed a chapter in the history of living beings, an appendix to biology. He has thus confirmed and rendered more definite the views of Epicurus, of Bacon, and Diderot.

Now, if it is easy to show that the individual and society receive their conditions of existence from biology, that living organisms result from chemical combinations, that chemistry is a branch of physics, that through gravitation the latter verge on astronomy, and that astronomy is indebted to mathematics for its marvellous progress, it would not be much more difficult to show that from certain points of view astronomy, physics, and chemistry might each be placed at the head of the hierarchy and made to dominate

the conception of things. The place assigned to mathematics, the most subjective of the sciences, could not fail to occasion some surprise. From the circumstance that number, expansion, and motion are in all existing things the simplest and most directly perceived characters, or that no science can dispense with this notion, it does not result as a matter of fact or of right that the mathematical group ought to be placed at the head of the series. Between mathematics and astronomy or physics there does not exist the same close relation as between chemistry and biology, between the latter and social science. It is direct experience, aided by industry, and the wide range given to the senses by perfected instruments that have determined the progress of astronomy, of physics, and chemistry, thereby widening the scope and enhancing the usefulness of mathematics themselves. Hence it would seem more to the purpose to reserve for the mathematical science a place in relation with its function, parallel with the group of the experimental sciences. For it is the starting-point of none, but the auxiliary of all of them.

Comte appeals to history for a confirmation of the order he has adopted. To the sciences he applies the law of the three estates. The first to escape from the control of theology and metaphysics were the more simple ones, or rather those which deal with the least numerous and most general data, which is not altogether the same thing. It was this judicious remark that suggested the positivist classification of the sciences, and in point of fact the hierarchy reflects faithfully enough the progress of the positive mind throughout history. But it does not follow that, in order to constitute philosophy, all the elements of which it henceforth possesses, the positive mind should retrace all the historical stages it has already traversed. Comte's conception is not practical, or conformable to the experimental method. It places the general before the particular, the abstract before the concrete, the law before the fact. Why not begin with the immediate or descriptive sciences, which supply their materials to the abstract sciences? These latter would then come, each in its turn, far more usefully to classify acquired knowledge, and sum up the general aspects of the various orders of phenomena.

IN Comte's nomenclature there is a strange omission which looks like a denial of justice. The concrete sciences have been overlooked. Comte acknowledges that they are the first to be born, but he adds that they are the last to be constituted. He feels that they are the foundation, the substratum of the abstract sciences, but, he says, the progress of the former depends on that of the latter. But would not the inverse proposition be equally true? The word *law* deceives this mathematician; he too often forgets that laws are nothing but the abridged expression of a fact, which under certain conditions is indefinitely reproduced. If, thanks to these valuable formulas, we are able to define and even foresee facts, it is because they have been induced from the facts themselves. It is the complex that is real and objective; the general and the simple are of a mixed order, being the subjective elaboration of the reality. Let us take care that Comte's hierarchy do not lead us back to the *universals*.

So far from resisting all classification it is the concrete sciences that are most easily classified. They dispose themselves naturally into groups strictly co-ordinate and forming a descending scale, from cosmology to politics, and their natural hierarchy embraces the whole universe. Each is a portion of the preceding, and the first knits them all together. By their side the laws flowing from them group themselves in their turn in abstract sciences perpetually controlled by the concrete sciences which they regulate. Still further, beyond physico-chemistry itself, reaches the sway of mathematics, a general auxiliary ever ready to lend the aid of its summary processes throughout the entire series of the hierarchy.

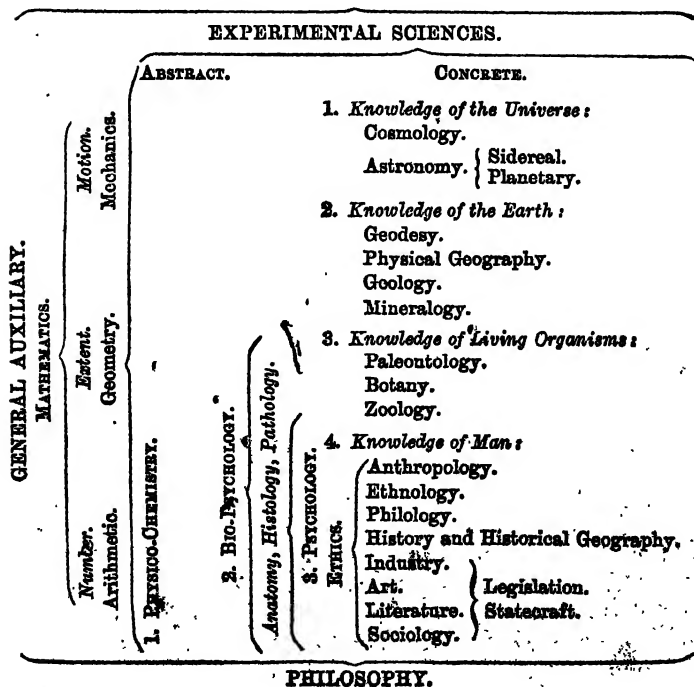
The subjoined table will give an idea of a positive rather than a positivist hierarchy.

On the right four descriptive groups, all the members of which proceed in a descending scale one from the other.

Laterally, three general and philosophic groups, deriving their materials from the descriptive series, knitted together by necessary relations, and so disposed that the first comprises at once the two others and the whole concrete series; the second regulates the third, and is applied to the two groups attributed to the study of life; lastly, the third, embraced within the second, corresponds to

the sciences relative to animals and man, while its subdivision *ethics* concerns the human group alone. Psychology is a branch of bio-physiology, by which it is regulated; bio-physiology is a branch of physico-chemistry, which it implies. Each has its laws, which are also the laws of the inferior group; the particular laws of a group can never encroach on those of the group in which it is comprised.

Lastly, beyond the series of the experimental sciences, mathematics, reducing to the notion of quantity the three general characters of all particular objects—number, extent, and motion—supplies man with simplifying processes which he applies to all knowledge.



General philosophy is composed of general results obtained by the concrete sciences and resumed by the three partial philosophies, Physico-chemistry, Bio-physiology, Ethico-Psychology. None of its conclusions can contradict those of its hierarchical constituents, nor disturb the natural order of their dependence.

The invention of sociology is the essential point in which positivism fancies it separates itself from the doctrines whence it proceeds. The critical and negative period, which closed the metaphysical age and swept away the edifice of the old *régime* was followed by the period of reconstruction, of *organisation without God or king*, in the name of science and history. Like the universe, like the animal kingdom, humanity has its laws, which must be discovered by experience. The evolution of societies has not been brought about at haphazard; in the future, as in the present and the past, it is still the result of all the possible relations between men, between mankind and its surroundings. The question is to determine the general curve in which its whole destiny is comprised. Such is the object of sociology, that sixth and last science, whose immediate regulator is biology.

Comte pretends to have solved the problem discussed in all ages by all philosophers. Though he did not invent, he at least formulated it with more precision than his predecessors, placing it where it ought to be, as the final *à posteriori*, as the conclusion of all the sciences. But this is the sole merit we can concede to him. With the exception of the courageous and zealous little orthodox circle, all the disciples have renounced, abandoned, or modified the social conception of the master. Littré, who had accepted it all at first (*Preservation, Revolution, and Positivism*), has retained a few shreds only, and these not the least eccentric—the optimism of evolution, the spiritual power, the religious office, “altruism.”

By dint of considering the questionable order of succession in fetishism, polytheism, monotheism, metaphysics, and of criticism as the special expression of progress, Comte ended by confusing necessity with legitimacy. Not only what has happened *must* have been produced—a very hollow idea in itself—but it was consequently in the order, and must be good; one social state succeeds

to others only because it is better : thus monotheism is superior to polytheism, criticism to metaphysics, and so on. Such an optimism is all the more seductive, all the more dangerous, that it may be supported by irrefutable arguments and partial truths ; moreover it countenances, not exactly compromises with the enemy, but suspicious regards for the most deplorable institutions of the past.

In order to give an idea of these eccentricities we shall here quote the most famous, the most endeared to the school, one which all the science of Littré has been unable to save altogether from ridicule. The Middle Ages are a period of progress ! The times of Clotaire, of Charles the Great, of Philip I., and Charles VI. were far superior to the fifth and fourth centuries before Christ in Athens, and to the age of the Antonines. The feudal system has been calumniated. The serfdom which bound the peasant to the glebe, a system in any case known also to the ancients, is a real modification of the old slavery, &c. The worst feature of these paradoxes is that they redound to the credit of the great scourge of humanity, of that theourgy which, after having disorganised the Græco-Roman civilisation, after debasing and stultifying human intelligence, aimed at dominating and utilising, rather than organising, the ensuing barbaric chaos. Thus positivism, while setting aside theology and dogma with a well-merited contempt, lavishes an enthusiastic and extravagant admiration on them for their part in the *social* work of Christianity. The Catholic hierarchy and the Society of Jesus are, in the eyes of Auguste Comte, models difficult to rival, worthy objects of admiration. Doubtless the efficacy of Christianity is exhausted, its career is closed ; but positivism aspires, not merely to replace, but to succeed it in every respect. Positivism thus aims at becoming “ the heir of the *spiritual power* and of the *religious office* ! ”

To a false historic conception were added influences from which Comte was never able to escape—those of his moral surroundings and of his personal education. He was born and had grown up in a period of spiritualistic reaction, Christian or mystic, combined with a tinge of Teutonic idealism and Hegelian “ processes.” The most extravagant heterodoxes assumed fantastic airs, symbolic, and

religious attitudes. Their mystagogists became intoxicated with a theophilanthropic pathos. Utopists and philosophers alike, Saint Simon, as well as Gioberti, were carried away by the theocratic ideas, to the great advantage of prudent, moderate, and academical eclecticism. The dream of the reformers was to recast society on the model of the secret societies, with pass-words, insignia, *chiefs*.

We shall not here express our opinion on Saint-Simonism, in the first place to avoid heart-burnings; for many generous minds, whom we respect, have been votaries of this religion, or of some similar fancy, in the enthusiasm of youth. In the second place the rehabilitation of the flesh, the advent of woman, the industrial pontificate and trifling of Ménilmontant, &c. &c., would seem to have little in common with philosophy.

Auguste Comte was a disciple of Saint Simon. It was in vain that he separated from him in 1822, in his twenty-fourth year, for the theocratic germ had already been planted in his brain—an instance of diathesis by contagion. His admiration for Catholicism; the institution of a pope, successor of the Roman pontiffs, represented in all the cities by oligarchies of the lettered classes; the invention of a spiritual power invested with the religious office, by the side of and above a temporal power entrusted to the heads of industries and then to the proletariat; later on the foundation of a trumpery cult, the delirium of an atheistic mysticism, were all so many symptoms of the incurable Saint-Simonian disease.

For Comte ethics are a branch of sociology. If by this he means that the social relations are the sole factors and the sole objects of ethics, he merely expresses a truth it is always well to bear in mind, but with which all utilitarians are familiar, and the evidence of which will be disputed by the metaphysicians alone. But with him this sound conception is complicated by a sort of pantheistic illusion. In his love of the general, of categories, of law, he loses sight of the reality. The individual, necessity, right, disappear before his eyes, and for him nothing exists except humanity and duty. Man is merely a member of the collective *great-being*; it is not the aggregate of individuals that constitutes society, but it is society that is the *raison d'être* of the individual.

The obligation of the individual to further the progress of the great-being, and the predominance of the *human* over the animal or organic attributes, becomes the fundamental law of ethics. There is a certain grandeur in this idea, nor is it lacking in efficacy; but in principle it is inaccurate, and the consequences flowing from it do not differ substantially from the ordinary conclusions of a less superficial theory.

There exists no collective *great-being*; humanity is merely a general quality—an abstract term; the only real living beings are the individuals to the aggregate of whom we metaphorically attribute a body, members, organs, principles of action. Like the *God-universe* the being-humanity is only a metaphysical entity. It is the individual, the conscient organism named man, that is the *conditio sine quâ non* of all society; it is for him in the first instance that all society has been constituted. The contact of two individuals and the implied contract guaranteeing their mutual interests are the foundation of all ethics. It is in this sense we say that all morality is social, because it is a treaty between two interests, and the sanction of two rights. Duty is accordingly consequent upon right. For the isolated individual there is neither right nor duty, two notions which become merged in that of want and interest. These premisses once restored, it is just and void of danger to ascertain and verify what the individual owes to his like, to his associates, to the aggregate of relations which we call society. In return for his right secured from all attack it becomes his duty to co-operate for the common good, to subordinate to the interests of others a portion of his own. Brought up, educated, protected by the fathers and offspring of those whom in his turn he educates and protects, by working for all he works for himself; and it is precisely this assurance that establishes moral obligation. Without common interests ethics become purposeless; without right, duty is a meaningless term.

"To love our neighbour as ourselves," and still more "to live for others" are therefore exaggerated formulas, whose application is as undesirable and useless as it is impossible. Why? Because

such maxims are opposed to nature, which, though he may modify, man cannot suppress. What a dull and commonplace society that would be in which everybody loved and lived for everybody else ! What value would love, friendship, generosity possess in such a state of things ? Nor is this all. A moral system based exclusively on duty and sacrifice easily becomes arbitrary, the instruments of tyranny, as despots are well aware. *Positivist Altruism*, for such is the consecrated expression, will all the less escape from this reproach, inasmuch as it is the motto of a theocracy. If merely inaccurate as a philosophic conception, it becomes dangerous in its application to the social order. It has no more right to the title of an irreducible principle than has the *sympathy* of the Scottish moralists. It is easy enough to reduce it to its elements, for is it not the juxtaposition and agreement of two, of a thousand, or a hundred thousand egoisms ?

Auguste Comte was a great thinker, and even in the aberrations of his pathological period he betrays great mental powers. In spite of a certain moroseness of character, he exercised a real fascination on men of talent and genius, such as De Blainville, Stuart Mill, Buckle, Lewes, Robin, Littré. A subsidy, as honourable to the master as to his followers, contributed to by dissidents and believers alike, rescued him from the stress of fortune. Let us by all means honour his memory, and feel grateful to his teaching for the great minds it fashioned. But the respect due the dead and the living cannot shut our eyes to the defects of the system.

The law of the three estates, the hierarchy of the sciences, *altruism*, and the religious office, do not justify the pretensions of the school. So far is Positivism from being the final philosophy that all it has *invented* has already perished. Its sound and durable elements, whatever gives it a vivifying power, all that the present age has retained of it, must be credited to the experimental method, and to the long series of great men from Thales to Auguste Comte, who, by bold intuitions, unwearied essays and observations, have identified the conception of the universe with the universe itself, and made philosophy, so to say, the reflection of objective reality.

In a word, materialism is the soul of positivism, as the common enemy of both has not failed to perceive. Yet who would have supposed that such a simple truth would be regarded as such a dire offence by those who benefit by it? That positivism is materialistic is no more than what its followers have a hundred times confessed. But that positivism is a form, often a distorted form, of materialism is a statement that they protest against with all their energies. All attempts at assimilation they regard as a cruel insult.

And they forthwith appeal to their distinction between the relative and the absolute, to their agnosticism,* to their reserve on the questions decided in the negative by materialism. To set aside, they tell us, is not to deny. The atheist is a theologian, the materialist a metaphysician. They *revive* the meaning of words—such is their favourite expression, and in Littré's great work, the "Dictionary of the French Language," may be read the following curious definition :

"In the language of positive philosophy materialism is that logical error which consists in explaining certain phenomena resulting from particular laws by means of other laws serving to connect together phenomena of a more general order, thereby foisting, as it were, into a more complex science ideas belonging to one of a less complex character." (1).

It is thus that by means of another *revival* positivism will take upon itself the religious office: "The definition of religion flows from its function, which is to bring education, and consequently the moral life, into harmony with the conception of the universe at each of the several phases of humanity. . . . With the conception of the universe the *religious office* changes."

But of what avail can be such reticences, always sincere, and perhaps clever enough in 1830, against the subjoined passages taken from amongst a thousand :

* In the relative, which is the exclusive domain of knowledge, agnosticism, the *unknowable*, has no place. Why so? Because there is nothing but the *unknown*, always capable of being known. Hence the *unknowable* is merely a bait, a concession to the metaphysicians.

"It is evident that living beings, or, in the language of the school, the 'organic world,' is separate and distinct from the inorganic world, of which it is a particular form, and without which it cannot exist. One portion only of matter is susceptible of organisation and life, and before obeying, as an animate being, the laws peculiar to itself, it obeys the laws common to all matter, to chemical affinities, to weight, heat, electricity. Oxygen, hydrogen, nitrogen, and carbon are jointly the four essential constituents of the living tissue; a few others, such as phosphorus, iron, sodium, chlorine, are merely accessories, and all the rest is excluded from the circle of organisation."

"To chemistry succeeds biology, the great science of living beings. From chemistry alone it learns that the organised tissues are composed of inorganic elements disseminated throughout nature that nutrition, which, with reproduction, is the foundation of all the rest in the animal, is nothing more than a vast operation of chemical composition and decomposition."

"The term 'soul' must be reserved for the aggregate of the faculties of the central nervous system in its entirety. . . . The soul is the sum total of the moral and intellectual functions relegated to the brain."

"History is a natural evolution, a development determined by the conditions of the cerebral nature of man and by the physical state of the world."

"The idea of any theological being, whatever is, as Laplace said, henceforth a useless hypothesis."

"If for the sake of a purely individual satisfaction, the idea were still retained of any theological being whatever, whether multiple or single, it would none the less have to be forthwith conceived as reduced to naught and to a nominal and supererogatory function."

"Whoever believes that the origin of societies, the establishment or change of religions, the foundation of states and empires, the privileged castes, the aristocracies, governments, oracles, prophecies, soothsaying, revelations, theology, the invention of the arts and sciences, flow all of them from the faculties of man and society,

exercised under the influence of various surroundings, whoever, I say, accepts this view, has fully accomplished the cycle of intellectual emancipation."

"The moment you refuse any place to supernatural wills, whether in the inorganic or organic world, in the cosmic or historical orders of phenomena, you belong necessarily to us."

Materialism asks neither more nor less; has asked it long before Comte or Littré; still asks it after them.

Positivism, adapting itself to the teachings of Bichat and of Broussais, and introduced into medical instruction by the dictionary of Littré and Robin, exercised the happiest influence on French physiology and medicine. Without accepting the system, the savants disseminated its spirit, the very name enabling them openly to pursue the experimental method, without incurring the odious title of materialists. This was much, for there are few daring theories more cautious and timid than those of men of science. Thus it was that positivism conferred the right of citizenship on French materialism. It slowly and noiselessly sapped the ground under the feet of official eclecticism; it modified the intellectual atmosphere, and prepared the way for a clearer and more definite philosophy, the direct outcome of the Encyclopædia. When an independent group, unaided and committed to no sort of compromises, raised the banner of *Free Thought* towards the close of the empire, it did not walk in the footsteps of Virchow, Moleschott, Büchner, Vogt, though still encouraged by the alliance of such men; it resumed possession of its own inheritance, which had well-nigh passed into the hands of strangers. Its work has been interrupted, at least apparently, by the disasters of 1870, and the lamentable disorders occasioned by them. The "*Pensée Nouvelle*" survived but two years; the "*Encyclopédie Générale*" reached its third volume only. But without an organ or visible association, the doctrines represented by those memorable publications still hold their own against commonplace metaphysics and refined idealism. They are gradually absorbing positivism, which will retain the honour of having served as the connecting link.

between the naturalism of the eighteenth and the materialism of the nineteenth century.

Auguste Comte's teaching made more noise at first in England than in France. And although rejected by Stuart Mill during the lifetime of the master, repudiated by Herbert Spencer, and justly assailed in its principal conclusions quite recently by the learned Huxley, for many it still shares in the same sort of discredit that has fallen upon the *common sense* of the Scottish school and Locke's somewhat limited sensualism. Nevertheless, if it continues in England to boast of such orthodox disciples as Richard Congreve, or of such emancipated thinkers as Lewes, positivism has on the whole finally made shipwreck against the peculiar temperament and the previous education of the English intellect. Besides, fresh theories and discoveries, made independently of it, came to give another bent and to supply fresh materials to philosophic speculation. Darwin's pregnant conception of zoology, and the repeated and direct observations of travellers, caused Comte's approximative and dogmatic system to fall into neglect. To all this was added a certain national pride, Englishmen on the whole preferring their own guides.

Amongst the psychologists of the old school and the modern *evolutionists*, John Stuart Mill occupies a unique position. His doctrine has received the barbarous name of *Associationalism*. But it is not the theory on the association of ideas, however ingeniously developed, that constitutes its originality, and it might be equally well called an *idealistic materialism*.

Before following the course of positive philosophy in Paris, Mill, who was gifted with a marvellous precocity, was, like his father (the faithful disciple and intimate friend of Jeremy Bentham), from his earliest years a utilitarian in ethics and psychology, a sceptical sensualist, as nearly allied to Berkeley as to Hume. While still a fervent positivist, a radical difference soon intervened to separate him from Comte. He was unable ever to accept for psychology the secondary part to which it was reduced in the hierarchy of the sciences. He was never able to get rid of the preliminary questions, the barren problem of certitude.

Positivism confining itself with good reason to determining the relative character of knowledge, plunged at once *in medias res*. It regarded sensation as the necessary medium between man and the universe, and without further troubling itself with an obvious fact, left the sentient subject, and devoted all its attention to the object. This is in truth the only profitable method, as has been shown more than once by the example of Stuart Mill himself. Mill is reluctant to make a single step in advance before ascertaining what are substance and phenomenon, what is the human individual, and whether there be a concrete reality exterior to man. Hence what happens? He exhausts his strength in prodigious efforts, in subtle tricks of reasoning to escape from a dead-lock. Though no metaphysician he ends with a mere entity. He rejects illusory processes and internal observation, in order to convert man and the universe themselves into illusions, ascertained facts of conscience, but which yet do not guarantee their mutual reality.

Nothing exists except sensation.

Sensation becomes at once both subject and object. The human person is a series of sensations. If he exists, God himself could be conceived only as an aggregate of continuous sensations.

There are actual sensations, which we call phenomena, persistent sensations (the anticipation of Epicurus), acquired sensations which constitute the substance of the mind and of things alike. The outward world is but potential sensation perpetually controlled by actual and momentary sensations. The association and comparison of these actual and possible sensations constitute imagination, reflection, reason. "At the risk of being accused of incompetency, we might be tempted to ask whether this absolute nihilism prevents the timber which we hew, the stones which we quarry and place one above another from being perfectly definite bodies, man from being a distinct organism, variously affected by the contact, the sight and sound of these outward objects? Does it prevent Stuart Mill himself from acting in respect of these potentialities of sensation like the rest of mankind? from reasoning as a consummate moralist and political economist on the relations established between individuals, between the individual and the

State, between all the beings whom he fondly calls so many series of sensations? Assuredly not. Hence to what purpose this play of thought which spoils his otherwise admirable experimental psychology and closely reasoned logic? Why expose himself wantonly to the objections of the eclectics? How can a series of sensations feel and act? Where is such a series to be placed, or aggregated? In the nervous system, in the brain, one series within another? Mill answers all these questions, but his answers are lame. And his disciple, M. Taine, who never ceases to believe in the concrete reality, gives himself endless trouble to show that outward objects really exist.*

The utter emptiness of what we have called idealistic materialism becomes conspicuous by such reasoning as the following. Matter may be defined as a permanent possibility of sensations; then if I am asked whether I believe in the existence of matter, I will ask in my turn whether you accept this definition; if you do, I believe in matter, *and all the school of Berkeley with me*; if not, I do not believe in it; but I confidently assert that this conception of matter comprises *all that everybody understands by this term* except perhaps the philosophers and theologians.

It would have been much simpler to call things by their name, and not substitute for concrete terms abstract and general expressions, which correspond only to subjective conceptions of the mind, all the more that, once quit of radical idealism, Mill shows himself a no less radical phenomenist. Experience is the exclusive foundation of his psychology and his logic.

In spite of his incurable mania for taking general terms as the equivalents of what is real, that is, relatively to ourselves, Mill is the most formidable assailant of the necessary ideas, the absolute, the infinite, the irreducible; and a large number of his unanswerable demonstrations will find a place in a subsequent part of this work.

* Locke, Hume, and Condillac suggested to Taine his theory of true hallucination. He was naturally seduced by the potentialities of sensations, and Mill's series without substance. We shall have occasion to refer more than once to the facts so carefully noted in his remarkable work "De l'Intelligence," 3 vols., Hachette.

But no one can indulge with impunity in the subtleties of nihilism. Mill met the same fate as the great majority of absolute sceptics. He was preserved by death alone from a complete return to mysticism.

Notwithstanding his positivist relations and experimental episodes it is evident from the foregoing that Mill still belongs to the old school of the English sensualists. But Alexander Bain, and Herbert Spencer, without at all overlooking the preliminary question of certitude, have left the narrow circle of abstract psychology and of logic. The latter especially, relying on the marvellous conjectures of Darwin, and turning to account all the modern discoveries in anthropology, biology, history, ethnology, and philology, has constructed with admirable scientific skill and labour a vast scheme of the universe, on a plan analogous to the positivist conception, but far more deeply thought out, at once more definite and more comprehensive. His "First Principles," his "Biology," "Psychology," and "Sociology" have already been introduced and popularised in France by repeated translations. The reasons which have enabled us to abridge the exposition of Stuart Mill's system oblige us also to omit, so to say, the doctrines of the most recent English and German thinkers. We shall meet them on common ground so frequently in the second part of this work, that to resume their theories here would be merely repeating ourselves by anticipation.

And now the time has come to recapitulate, in bold outline, the various stages traversed by the human mind in search of a conception of the universe adequate to the reality, and to characterise the tendencies of modern thought.

In the midst of the endless maze of highways, byways, and crossways, with all their capricious and intricate meanderings, there stand out boldly the two main routes followed by philosophy from the beginning of recorded time. One starts from observation and ends in science; the other from imagination and ends in intuition, whether logical or mystical. The first, slowly and laboriously traced by obscure pioneers, continued by a few men of genius, seems abandoned for some fifteen centuries. The second,

smooth, attractive, widened by the passage of multitudes going to and fro, advancing and retreating, jostling each other at the command of innumerable leaders, full of empty noise, of contradictions and chimeras, flanked by side-ways, diverging branches, and blind alleys, continued throughout all time, proclaims and believes itself the only fruitful course, the *via triumphalis* of humanity.

But presently the works are resumed on the long abandoned road. The period of tentative efforts has passed; each science, according as it becomes constituted, sends forward and directs its workmen. Obstacles are surmounted, gaps filled up. To the main artery a number of converging paths convey the continually increasing contingents of the arts and industries. According as the experimental route becomes crowded its rival is deserted, nay, stopped altogether; and the faithful groups still lingering on its track, look on while the modern spirit presses forward. While they wrangle, unwearied science, applying to things its instruments of observation, fixing its telescopes and microscopes, inserting the dissecting-knife into the very mechanism of thought, goes straight to certainty.

Anthropomorphism was from the first, and still remains, the inherent vice of thought. The natural illusion which compelled man to regard himself as the centre and end of all things, obliged him also to make the world to his own image, to endow things, then groups, then the universal aggregate, with intentions, wills, design, whence gods, forces, Providence. Man projected himself, his life, and intelligence, into a nature indifferent to all these things; he attributed passions to phenomena, thus personifying them. Bowing down before these factitious beings, whom he had invested with authority, "fearing the hatred and the wrath of the gods whom he had invented," he wasted thousands of centuries in regulating imaginary relations between them and himself. Clever knaves, half dupes of their own devices, constituted themselves the interpreters and ministers of these powers, making them speak, and selling in their name fancied favours in this life and the next; profiting on earth by the caprice of events, in heaven by the presumptuous credulity of man. Promises, whose fulfilment could

not be verified, became articles of faith, axioms, principles, which logic has pretended to withdraw from and impose on experience.

Ever since the Stone Age experience has never ceased to be swayed by imagination. When Thales and Anaximander first began the direct study of nature, they found human thought, even their own, hampered with a crowd of superstitions and myths. Their defective science, incapable of dissipating these vain shadows, was fain to have recourse to conjectures, to hypotheses, though these were at least legitimate, since they aimed at grouping together facts either verified or considered as such. But their successors soon strayed from the sound method; and with the exception of Democritus and his school, of Epicurus and Lucretius, all returned to metaphysics, by accepting the radical distinction between thought and matter, reason and fact. Rationalistic dualism sprang from this mitigated anthropomorphism, inclining now with Plato towards idealism, that is to say absolute nihilism; now returning with Aristotle and Straton towards the observation of concrete reality; or else with Zeno and Chrysippus confounding in an illusory pantheism the two principles which they called spirit and matter. Standing apart, and verging either on a narrow sensualism or an extreme idealism, or else immersed in a timid rationalism, the probabilists and sceptics have endeavoured to ruin all the systems by playing them off one against the other.

The Greeks had uttered the last word, and had nothing more to do except await from the progress of science the confirmation of one or other of the fundamental theories—materialism, rationalism, idealism—when the conquest of Alexander, and the profound disorder produced in the world by the Roman empire, plunged thought once more into the chaos of oriental superstitions. Philosophy fell again under the yoke of theurgy. Neo-Platonism, whether independent or Christian, under both its forms, accomplishes the same work of disorganisation and prostration. Reason is sacrificed to faith, observation to ecstasy; the absurd becomes the mark of truth. Augustine makes philosophy the slave of theology.

Greece and Rome had supplied Christian thought with two universal languages, a metaphysical system and a prey. Both had

surrendered themselves to its sway, and Christianity, after thus destroying the old world, found in the puerility of barbarism a pupil on a level with her teaching. Mistress of Europe and Asia Minor she subjected them to her sanguinary discipline. Strange office of a doctrine from beyond the grave transformed to a rule of life! A radical revolution against nature and society ended in a government—but what a government! Beneath its yoke the mind, arrested in its progress, fell into a sleep disturbed by feverish dreams, and, if any glimmer of thought threatened to dawn, murder and the executioner were ever at hand again to extinguish it.

Still it was necessary to make some concessions to restless and reasoning temperaments, which otherwise fully accepted the authority of "Holy Mother Church." The logic of Aristotle is permitted to be taught—a mistake—for the "Categories" give rise to the dispute between nominalism and realism and to the idea of conceptualism. Thus materialism, idealism, and rationalism are brought face to face, though at first not recognised under their new names. But when Aristotle's "Metaphysics," brought back from the East with the neo-Platonic "Commentaries" of the Arabs, came to add fresh fuel to the dispute about the *Universals*, the only escape lay in a philosophic orthodoxy such as that so ably formulated by Thomas Aquinas, or in a mysticism, fervent like that of Bernard and Bonaventure; despondent like that of Gerson, and the "Imitation of Christ." No salvation for those who stray from these three routes. Roger Bacon, for having proclaimed the rights of science and foreseen its results, languishes for upwards of twenty years in dark dungeons.

The fall of the Byzantine empire and the flight of all that remained of antiquity to the West, inflicted a serious blow on theocratic despotism propped up by a false Aristotle. Light penetrated into a world, enlarged, ventilated, so to say, by the discoveries of the great explorers. The earth had been circumnavigated; other peoples were found to exist, other races, other religions more ancient and not less illusory than catholicity. The scholastic triflings were discovered to be mere games of patience, idle puzzles.

The audience explodes with laughter while Erasmus and Rabelais—the one with sharp-pointed arrows, the other with cyclopean sarcasms—assail royalty, the Church, war, corrupt justice, all the tyrannies, including that of the pedants, the worst of all. Copernicus makes the earth revolve round the sun; Galileo and his rivals introduce experimental physics; Montaigne and Charron the natural history of psychology and ethics; Bacon founds inductive philosophy; Hobbes and Gassendi revive Epicurus.

Had short-sighted though talented minds not attempted to reduce the Renaissance to a religious reformation, the world would have escaped from the pale of Christianity. Thought was beginning to keep clear of orthodoxy and heresy alike, and there would soon have been an end of piety and impiety, or reasonable Christianity and the intermediate truths. Humanity would have passed at once from the fifteenth to the eighteenth century. But the Church, like the Homeric shades, drew fresh life from the blood shed during the St. Bartholomew massacres; her courage revived; she supplemented her impaired forces by redoubling her intermeddling energies. She still enjoyed some grand triumphs in the revocation of the Edict of Nantes, the “dragonnades,” and even the insipid quarrels with the Jansenists, and about the confessional cards. At last, when her excessive violence, without losing its odious character, began to grow ridiculous, when the stake ceased to be possible, there still remained the hysteria of miracles, the sentimentalism of the women, the ignorance of the rural districts, and her last stronghold—the education of the rising generations—one which she has not yet surrendered to science. The Reformation had for philosophy the disastrous result of strengthening the sway of Christianity by perpetuating religiosity, and leading the world through sentiment back to metaphysics. Nay, Protestantism itself was the fruit of the Catholic education. For fifteen centuries the church had been perverting the human mind. Such prolonged and baneful influences end by interpenetrating the organism, being transmitted and intensified by inheritance.

Descartes, Leibnitz, Locke, Condillac, Newton, Bonnet, Kant, Hegel, Spinoza himself, Toland, Priestley, Rousseau, were all

Christians to some extent. Not only did many of them shrink from breaking with a religion which had at its command the tribunals, the rack, the pincers, and the stake, but the majority were imbued with the hereditary bias. They were doubtless held in suspicion by orthodoxy and the clerical party, which had nothing to expect from them. But who does not detect the Christian element in the metaphysical aberration of Descartes, the supreme mechanician, in the pre-established harmony of Leibnitz, in Kant's postulates?

Voltaire himself did not thoroughly remove the virus, with which his own deism is tainted, that vague and nominal deism destined to be the last refuge of the Christian spirit, a residuum of Father Porée or some other Jesuit professor's teaching. No doubt metaphysics alone suffice to lead to deism; but what are metaphysics themselves except a mythology, merging with the positive religions on the common ground of deism? Had it no other feature in common with Christianity, independent spiritualism would still be compelled to uphold its former persecutor. This is clearly seen in the French eclectics, and the Scottish sensualists, with their good sense, sentiment, the absolute, inventors of internal observation, idealists, and mystics, who are in spite of themselves the last props of religiosity, of Christianity, of the Church which smiles approval and inwardly anathematises them. We will not recall Victor Cousin's mutilated catechism and his letter to the pope, for that thinker publicly renounced philosophy after having distorted it. But all the others, even the most liberal minded, the most earnest and sincere, the most incredulous, still believe in the utility, in the necessity of a religion; and as between Christianity and science there is no room for any respectable or durable philanthropy, they remain Christians. They are the last heirs of the Græco-Oriental neo-Platonism. Thus it is that Alexander the Great has his share in the cerebral development of Damiron, Caro, Laboulaye, nay, of John Stuart Mill himself.

The modern criticists cannot decline this parentage, or rather this remote relationship. In spite of their innumerable concessions to experience, and the severe and useful analysis to which

they subject all metaphysical reasonings, they still cling to their irreducible entities, to the logical and moral categories, to absolute free will and the famous "categorical imperative" which denies it. Lastly, on the pretended postulates of reason they rebuild all the beliefs, which their logic has overthrown, and which remain the only foundations of the religions. From these religions they seem to withdraw, but never fail to return again to them.

Henceforth there are but two courses open to philosophy, those on which it entered from the outset. In one of them all progress has been effected; in the other the illusions of anthropomorphism and the extravagances of logic have been developed and become entangled in inextricable confusion, like so many thorny brambles, putting forth strange flowers and foliage. The few partial truths which we have met strewn along the speculative route were not indigenous to it, but were wafted or borne thither by stray refugees, or faithless visitors from the experimental path, by such men as Aristotle and Descartes.

No scientific mind is any longer ignorant of the true course. Nevertheless, the other still bears its official character, its trees are still hung with crosses and decorations, along its path are invitingly disposed places, titles, sinecures, the very national burial-grounds; the multitude follows the traditional ruts mechanically. Hence many emancipated minds, finding that it is not "respectable" to conform their lives to their teachings, seized also with ambitious scruples, with convenient mock modesty, seek and find many oblique channels wherein to divert the truth of which they are ashamed. Here a *determinist* makes overtures to the theory of final causes and providential design; there a chemist, a physicist, or a physiologist, recognises the truth that the living organism and nervous concentration are indispensable to the production of thought; but he hastens to add that thought may still be something else besides a product of the cerebral elaboration, what, he knows not. And if inopportunely told that in his mouth this distinction between the name and the thing is childish, he will exclaim with many an innuendo: "These are the women, the reverend fathers, the officials. . . . *Maxima debetur pueris reverentia.* . . . Pray,

do not place me at issue with the *proprieties*." We are all familiar with such savants, and although their natural home is puritanical England, they are also to be met with on Gallic soil. But whom do they deceive? Neither the enemies of free-thought, nor their admirers, saddened by such tergiversation. If, however, it is themselves that they deceive they may at least be excused by their good faith. But it may still be asked whether they are quite as sincere as they are prudent?

In any case all the secondary byways of philosophy have again converged on the two main routes. The middle term, rationalism, is no longer to be distinguished from all other varieties of metaphysics. MATERIALISM on the one hand; on the other SPIRITUALISM, whether religious, idealistic, mitigated, or sceptical—such are the two poles of thought. The first has gained in attractive power all that the second has forfeited, and after a long divorce, it once more becomes the common ground of science and philosophy, henceforth linked together by indissoluble ties. It is from this point of view that with Democritus, Epicurus, Diderot, Condorcet, Laplace, we shall contemplate the spectacle of the universe, and of human things in time, and space.

PART II.

CHAPTER I

THE UNIVERSE.

§ 1.—*Matter.*

HYDROGEN, oxygen, carbon, nitrogen, bromine, boron, chlorine, phosphorus, iodine, arsenic, silicon, selenium, sulphur, tellurium, fluor, gold, platinum, lead, silver, iron, copper, tin, zinc, quick-silver, manganese, aluminium, nickel, cobalt, antimony, iridium, rubidium, calcium, cesium, lithium, cerium, caesium, baryum, didymium, erbium, cadmium, bismuth, chromium, glucinum, ilmenium, lanthanum, magnesium, molybdenum, potassium, sodium, niobium, palladium, pelopium, rhodium, ruthenium, strontium, tantalum, terbium, thallium, thorium, titanium, zirconium, yttrium, vanadium, uranium, tungsten, gallium—

Such are the elements hitherto discovered, of which are composed the earth, its productions, its inhabitants, and its atmosphere.

The other planets acting much the same as ours, and spectrum analysis having revealed the presence in the sun of some of these bodies, an identical or analogous composition may reasonably be attributed to the whole solar system. Lastly, the light of certain remote stars betrays a common fundamental basis. Science may confirm or modify these assumptions, may increase or diminish the number of the irreducible substances, and it will be the province of philosophy simply to record the discoveries of science.

But from the already ascertained facts there flows one certain

conclusion, comprehensive enough to embrace all the partial modifications that may be introduced by further experience. The things, the aggregate of which is expressed by the term *universe*, are formed of substances of some sort, in some definite number, beyond which nothing exists.

The general character of these substances is indestructibility. Even if a more searching analysis were to reduce them to ten, to five, to one only, the sum total would not be thereby diminished, since this sum total would still be equivalent to the totality of existence.

Of each of these substances, the special character is homogeneity. They may be divided in thought as in fact into as many parts as you please; each equal fragment of any given substance will still be equivalent to all other equal fragments of the same substance.

The simple bodies, combined in diverse proportions, have received and will retain the name of *matter*.

We are here little concerned with the processes by means of which man has acquired a knowledge of matter and of the organic, cerebral, and mental conditions resulting from all experience. The existence of matter is sufficiently demonstrated by the use we make of it.

Of it are composed our food, our clothes, our houses, the instruments and materials of the arts, of the industries, of agriculture, trade, war, nay more, our flesh and bones, our blood, muscles, nervous system, brain.

What would life be without living bodies? What the person and thought, the individual and society, without material organism, definite and distinct? Terms void of all meaning; nay, the very ideas represented by these terms could never have arisen.

There is no action that does not proceed from certain relations observed to exist between certain groups of material combinations. The most abstract sciences rest entirely on estimates of quantity. But there is no quantity without matter; no number without things that can be counted; no extension without objects possessing dimensions. Thanks to faculties inherent in our organs, we have

the power of considering separately what we call the properties of bodies, and of speculating on those properties. When they are constant we induce laws which we confidently apply to matter, the better to know and adapt it more thoroughly to our necessities. But of all these operations the *conditio sine qua non* is matter in the subject, matter in the object. If no man or organised body existed, neither would knowledge or thought have any existence. But if no matter existed, there would be neither body nor man; the one implies the other.

Being is inseparable from its manner of being, else it would be in no way distinguished from naught. The ultimate particles of the simple bodies either stand in juxtaposition or are blended together; they combine or repel each other according to their nature. It is from their manner of being that flow those affinities, those permutations, that motion, which by superadding the idea of force, of virtuality, language has converted into real agencies, beings of a special order, laws ruling the universe. Here we have nothing but general terms, no doubt useful and indispensable, but which we must be careful not to endow with anything resembling an intention or a will. To do so would be to introduce anthropomorphism into science. They mean nothing more than this: given sixty-five or seventy bodies that cannot be reduced one to another, and presenting such and such characters, between them we determine such and such relations of distance, of succession, such and such accidental or constant combinations. Why, it may perhaps be asked are things so constituted? As well ask with Voltaire why anything exists.

The simple bodies are composed of indivisible atoms; in each group the atom is the unity of an indefinite sum. The atom itself may be divided in thought; but analysis aided by calculus is compelled to stop short at that point. Science has thus ended by confirming the intuition of Democritus and Epicurus.

The atom of a given body, blended with one or more atoms of any other body, constitutes a molecule, a sort of complex atom, which itself enters into fresh combinations, in their turn endowed with special characters, with particular affinities. Motion is the most

general name, or better, the ultimate result of all the properties and of all the relations of bodies.

Nothing is more varied than the intimate constitution of the molecules, and consequently of the mutual relations of the atoms. A given atom of hydrogen, or of nitrogen, or of any other element will combine either with two, or three, or five, or twenty atoms of the other primary elements, and these may themselves be replaced in the combination by equivalent groups. From these differences in the intimate structure of the molecule there results an extreme diversity even in the most similar compounds. Two aggregates may present the same aspect and comprise the same general proportions of the same simple elements, and yet differ in their properties and effects. The fundamental and often incomprehensible character of the most complicate aggregates resides in the composition of the molecules, in the reciprocal proportions of the constituent atoms.

We have seen that motion is the manner of being of matter, that it is at once the condition and effect of all atomic or molecular combinations. In itself it is nothing but the actual and continual displacement of all the particles. Motion takes various names, according as it affects all bodies, or diverse groups of bodies, and according to the different orders of phenomena accompanying it. Science studies separately each of these manifestations of motion, and it is right in doing so, for each gives rise to very different and distinct phenomena. But it does not overlook their fundamental identity. Although finding it convenient to regard them as forces acting on matter, science knows that they are but various aspects of matter, different states more or less general, more or less particular. They are not isolated, but hold together, bodies passing from one to the other by imperceptible transitions; they succeed, interchange, are transformed one to another; they are reducible one to another; lastly, all are comprised in the idea of motion, of matter in motion. The correlation of the physical forces is now finally demonstrated and accepted.

It is impossible to be too much on our guard against the tricks of language, against the personification of general terms; nor can

it be too often repeated with Voltaire that there are no beings called attraction, magnetism, gravitation, weight, electricity, light, vegetation, life, or thought; neither is there any entity called motion. There exists nothing but bodies simple or complex, the latter composed either of all or of some of the former; aggregates being continually made, unmade, renewed, the various states and relations of which come under the observation of man. Laws are but the summaries of concordant observations and of verified inductions; they give an account of present phenomena and enable us to foresee and foretell their return under like conditions. When we are told that all bodies obey the laws of gravity, we are to understand that all bodies are heavy, and nothing more. When we speak of the effects of attraction or of life we should remember that it is precisely the aggregate of these pretended effects that constitutes the category, the class electricity or attraction. These remarks are all the more necessary that languages are now formed, objective philosophy being thus compelled to employ an instrument created by anthropomorphism and distorted by metaphysics.

However, there is no occasion here to enter with chemistry into the intimate constitution of bodies, atomic or molecular combinations. We are not called upon with physics to expound and follow in all their applications the laws suggested to that science by the series of phenomena arising out of the external relations of bodies to each other. Still less are we concerned with mathematics and geometry, which operate on number and dimensions independently altogether of the substances themselves. We can but take all the sciences for granted and accept their verified conclusions.

Epicurus conceived matter under the form of a vast textile, more or less close-grained, stretching in all directions throughout space. This ingenious hypothesis enabled him to understand the various densities and motions of bodies. What he asserted was denied; but it would have been better simply to suspend the judgment, for we do not in fact yet know whether the absolute void exists. But the pneumatic machine produces in restricted spaces a relative void inaccessible to gravity or sound, and in which life is impossible.

Further, in our atmosphere and beyond it, in the interstices of molecules no less than in the interplanetary spaces, physics assume the existence of a subtle imponderable matter, rarer than the matter which remains beneath the receiver, lighter than the Epicurean void. Several reasons doubtless plead in favour of the existence of *ether*, especially the transmission of mutual influences between the stars, and of the waves of light. But who objects to gaps in nature? How can such a point concern us? We are as indifferent to one theory as to the other. Still the elasticity and compressibility of bodies, the relative vacuum and the *ether* are less summary explanations than the void of the ancient atomists.

By the side of the materialistic void is grouped the metaphysical void, the *concept* of space, a still more complete vacuum. This, however, is obviously nothing more than an abstraction. It is the quality of expansion, which is inherent to all form isolated from its subject and converted into a noun substantive. Matter is the reality of space. But we shall see further on how man was gradually led to separate space and time from bodies and the phenomena constituting them, and to convert the relative into the absolute.

From the atomic affinities and molecular combinations result the aggregates, limited at once by their individual structure and the expansion of other bodies. Forms are nothing more than the respective limits of these aggregates in juxtaposition. Apart from the variations of size, they remain necessarily the same in all bodies constituted by the same elementary conditions. Their persistence has suggested the idea of types, invisible and eternal moulds, imposed beforehand on pliant materials. It is obvious enough that in the mineral, vegetable, or living species there is nothing beyond general terms, summaries of characters common to several similar individuals. Genera are nothing apart from the individuals; they possess no compulsory virtue, nor any occult force.

All the mutual relations of bodies, all the modifications experienced by their form and structure, are comprised in the category of motion. Some, such as crystallisation, vegetation, life, thought, are peculiar to certain states of substance, to certain orders

of combinations. Others, though in various degrees, affect all bodies, and determine the first.

Of all relations the most general, that which, according to the accepted expression, governs the universe, has received the name of *attraction*, and from it are derived the laws of magnetism, of gravitation, or weight. In fact, attraction is merely the order in which bodies are disposed, and the motion that they communicate one to the other by their contacts. In metaphysics it becomes a power, a force, a law grouping and upholding them in an immutable equilibrium. Hence follow so many commonplaces utilised by credulity ; so much superfluous admiration, which may be cured by considering that providential design is equivalent to the construction pure and simple of what exists. Objects being many, existing concurrently, they must needs be disposed in some fashion or other. The order we detect in the arrangement interests us because we live in its midst. But if chaos, or any other disposition were compatible with our existence, we would all the same discover some plan or design in it.

Bodies are therefore situated and act, in respect of each other, as if they were mutually attracted directly as is their density or mass, inversely as the square of their distances. This attraction would seem to result from the so-called *magnetic* properties belonging either to all substance or to a certain state of matter. The magnetic action, transmitted from contact to contact with extreme rapidity, will one day explain those actions reaching to remote distances which play so great a part in the interplanetary world.

Weight, as Aristotle might have said, is attraction in act, from which it is as inseparable as it is from matter. All bodies are heavy ; all, left to themselves, move towards others heavier and denser than themselves, and would coalesce, penetrate to their core, but for intervening obstacles, but for lesser though still perceptible attractions retarding them. Volcanic eruptions, the upward tendency of flames, the growth of plants, the phenomena associated with a centrifugal force developed by rotation, seem opposed to the principle of gravity, to the laws of attraction. But these

deviations are contained and comprised within a narrow circle, and have no interest except for man. To whatever height smoke, a tree, or a bird may ascend, they have all their limits, and they must needs return to the earth. As for man himself, he is firmly attached to its surface, from which it is no small matter if he can raise himself six feet. His thought alone rises somewhat higher; but, stricken by death, it returns to its starting-point.

In its motions matter would seem to retain a degree of freedom, to indulge in a sort of tolerance. Even in its most sweeping cycles it defies mathematical accuracy. Straight lines, perfect curves, uniform surfaces, forces always equal, always calculable, and all those infallible deductions of geometry, of physics, or mechanics, thanks to which man has created not only railways and telegraphs, but also all the arts and industries, do not appear to come within the scope of nature. At least she has been able to realise these inventions only by the intervention of a brain.

Still gravity remains the universal law, the law of the densities. Only, in the texture of substances, and on the surface of bodies, its general power is necessarily combined or reconciled with a multitude of vibrations, undulations, secondary motions subordinated to partial centres, which obey it while retaining an ephemeral autonomy.

Electricity, heat, light, are further varieties of motion. The phenomena associated with them seem independent, of the impressions they produce on our senses, or whence their names are derived. By shutting our eyes, for instance, we suppress light and its coloured components, but not the wave-motions that waft it from the sun to the earth. In its more restricted sphere the same remark is applicable to sound. It is easy, either by withdrawing from its reach, or by stopping the ears, to deaden or suspend the sensation of hearing, but not the vibration which produces it. Intimate allies, mutually supplementing and reproducing each other, electricity, heat, light, are scarcely any longer to be separated from magnetism and gravity. In order to explain them it is no longer necessary to have recourse to those fluids, to those spirits, to that phlogistic principle appealed to by the physicists of

the eighteenth century, for even science has had its mythological era. Like all other natural forces, they are reducible to contacts of atoms, of molecules, and aggregates. They are at once the agents and the products of certain combinations, of certain conditions of bodies. But all bodies are not indifferently or to the same extent subject to their influence; they are special forms, intermittent manifestations of motion, herein differing from those really universal characters of matter called attraction, magnetism, gravitation, weight.

Even far less extensive is the domain of life. Life is an endosmose and exosmose motion through the membranes of a cell, or rather, it is the state of particular tissues admitting certain simple elements only—about sixteen in man—and capable of absorbing certain substances of which they reject the residuum. Nutrition, the general character of life, is contained in germ in this property.

As there exists neither electricity, heat, nor light independently of the bodies adapted to produce or receive them, there is no life independently of certain combinations called *organisms*.

All the parts of these organisms are supplied by the matter which nourishes and supports them, but they realise the living state only in the order in which their affinities dispose them. This particular order is found only in certain definite and determining conditions. The innumerable degrees of the vegetable and animal series constituting the scale of life are comprised in certain mediums subjected to the more general laws of matter in motion. All the individuals and all the groups of living individuals possess faculties inherent to their structure, graduated according to their more or less complex forms. They have their laws flowing from their organism, laws which they obey within the limits assigned to them by their surroundings, under the sway of the universal fatalities. Like all other bodies, they react on their surroundings, but how limited this action is when compared with the irresistible force of attraction, of gravity, or electricity!

The conditions of life are atomic combination, gravity, magnetism, electricity, heat, light; but life is not itself the condition of any

one of these states of substance. Life borrows all its elements from the materials elaborated by some few simple bodies ; but it returns them to the common source of supply deprived of the value they derived from the organism.

Thought, like life, gravity, electricity, is a motion ; but a motion in life, in an organism, in a brain, or rather in a part of the brain. It is a special property of a very special condition of matter.

§ 2.—*The Sidereal World.*

Clusters of globular masses, scattered in all directions, to the remotest depths of an abyss, revolving round themselves and round each other in orbits to which they are confined by the surrounding attractions, such is the reality of the universe. These globes neither ascend nor descend, but rotate and whirl with a prodigious rapidity, which no doubt tends to the stability of their course. Shall we ever arrive at an accurate knowledge of the circumstances which perpetuate this universal equilibrium? Attraction explains nothing. Lucretius supposes that the earth is upheld by "a lower atmosphere," an hypothesis which may contain a certain amount of truth. For the position, or rather the region, of each star would seem to be determined by the medium in which it was born and by the resistance of the ether. For the rest, in the ether there is neither high nor low, neither bottom nor sides, nor is there any *reason* why the material aggregates should occupy one place rather than another. Here again we see how idle is the question *why*.

The expanse that we call heaven serves as the medium for the molecular actions which become transmuted to vast co-ordinated motions ; it also transmits in all directions the light emanating from the stars. Wherever this radiation ceases, where the light-waves die out, the expanse is of an intensely black colour, changed for us to blue by the intervention of our atmosphere. Is the state of the heavenly bodies a consequence and a transformation of their rapid motion, a result of their friction against the ether? Is it a property of their incandescent nucleus, or of their photosphere, or

of both together? But whatever be the cause, the effect exists, and we must be satisfied with noting it. What are the constituent substances of these asters? The spectroscope, that marvellous instrument of optical physics, has discovered in the sun, in Sirius, several of the elements common to the earth and the other planets. Do they also contain simple bodies different from the seventy elements, or thereabouts, of our chemistry? Such may well be the case, though it is here of little consequence whether it be ever ascertained or not. For us it is enough that the stars are composed of matter.

Although they receive the extremely relative name of fixed, the stars really move through space with tremendous velocity; and if their motion left a track behind it, the line traversed by them would describe more or less elliptical orbits of enormous periphery. Their extreme remoteness conceals from us those celestial revolutions which are often to our years "what the size of the earth is to the distances of the stars;" distances so prodigious that the light of certain constellations may have been travelling for fifty thousand years without having yet reached our planet, or without bringing within our ken the retarded image of suns that have ceased to be. "In the midst of a vast plain we fancy the more remote objects bordering the horizon are at rest, whereas the least displacements of nearer objects seem very perceptible." (Amédée Guillemin—"The* Heaven.")

Still the motions of the stars were amongst the earliest observed facts; they struck the gaze of shepherds and navigators before they were calculated by the learned; and even a rudimentary astronomy was able to associate them with our seasons, on which they exercise no appreciable influence. But those primitive observers had little idea that they were observing the course of the asters from a globe itself in motion. The sun, in their eyes the orb pre-eminently in motion, is nevertheless at rest in respect of the earth; and of its real motion, which still escapes our calculations, they had no suspicion at all. From the ascertained facts, which they skilfully observed, they were unable to derive more than a limited and superficial science. Ours is far more advanced, and has made

immense progress since the days of Copernicus. But how many revelations the telescope has still in store for it! Who knows whether, carried by the sun in a circle of which it may not perhaps have yet completed the orbit, we may not see the very constellations wane and disappear that we have already classified; whether we may not come upon unknown regions where the stars of sixth magnitude shall become vast fiery orbs? But even so, if an astronomy in its infancy was unable to distort the penetrating vision of Epicurus, experimental philosophy will be none the more perplexed by a new astronomy. Under other skies it will but meet with fresh combinations of matter.

The outlines of human and animal forms, the hallowed emblems designed by the fancy of the ancients on the overhanging vault of the firmament of Plato or Aristotle, date from an epoch when the heavens kissed the earth, when space was the domain of mythology. It is needless to add that they lack all reality. But even the groups personified by them are no less artificial. Though useful landmarks enough, the constellations are themselves merely the result of perspective. The stars of the Lyre, of the Great and Little Bears, of Orion's Belt, may possibly be connected together by no special ties. And who will venture to say that they lie in the same plane and at the same distance, or that the estimate of their size corresponds at all to the reality? Is it the effect of a change in their structure, or the result of distance? We may possibly see them grow larger as they approach us from the depths of space, or smaller as they move farther from our system. When they advance on their elliptical orbit in the line of its length their light accumulates, so to say, and exaggerates their bulk; while their brilliancy wanes as they recede from our gaze. Hence the individual members of the various constellations must be studied apart.

Nevertheless there exist natural groups accessible to our vision, that is to say, to our instruments. Systems of stars have been observed revolving round a central orb. Sometimes two or three are associated together revolving round each other—pairs or triplets, themselves the elements of a still vaster vortex. Lastly, our solar world is an instance of a more modest system, in which the

luminous orb is encircled by inferior bodies borrowing their light from it. If we consider that from any one, even the nearest, of the fixed stars, the planets of our solar system would be perfectly invisible to beings like ourselves, and that new planets are every day being discovered in our own system itself, the probable existence of other analogous groups will readily be admitted. Each particular star is a sun, whose satellites are lost to vision in the splendour of the central orb. Hence the conjecture in the well-known passage of Lucretius regarding the existence of other worlds such as ours passes from an hypothesis almost to a certainty. At the same time the wild theories and dithyrambs on the plurality of worlds may well be left to the poets of astronomy and to the theologians, who ask innocently and ingenuously whether Christ came to save the planets as well as the earth. Let us wait till it has been discovered in what asters life and humanity may find their conditions of existence, and what relations may be established between "the sister humanities" dwelling millions of leagues apart. Unless indeed, despairing of the telescope, the telegraph, and the telephone, a knowledge be reserved for the dead which is refused to the living! Dante and Jean Reynaud might act as our guides. But if we had to rely on our souls alone to visit the blazing city of the sun, the deep sloughs of Jupiter, and Neptune's gaseous abysses, it would be better to lie in wait for the transit of some comet and take passage on its erratic tail.

We are all familiar with the hopes and terrors inspired by those wandering asters, as numerous in the heavens as are the fishes of the deep. Many have passed their way, many will still pass on without touching our planet. But neither the indifference begotten of long habit, nor the reassuring words of the astronomers, can insure us from an unforeseen collision, or from the disturbance some indiscreet comet may at any moment produce in our atmosphere.

There are comets which belong to our system; the sun seems to be one of the foci of their vast elliptical orbits whose curves their regular return has enabled science to calculate. But there are others which have never returned; they have traversed the solar

world without being attracted by its great central orb. Do they travel along the lines of an indefinite hyperbola bearing them across the heavens intersecting the planetary orbits and the starry cycles? What are they? Fully developed and durable bodies, or infant stars which will yet be reduced to order by gravitation? Are their igneous nuclei fated some day to restore their heat to extinct suns? Are their gaseous and transparent tails the rudiments of an atmosphere? Are they germs or fragments? Of what are they composed? The spectroscope will yet solve all these questions.

Isolated stars, sidereal and planetary systems, comets, all form part of irregular discoid or lenticular masses, luminous spots dispersed throughout space, nebulae often invisible, formerly regarded as a reserved store of matter, but now resolved by our instruments into myriads of asters. The greater part of these misty appearances are situated at distances and occupy spaces defying all our calculations. We are ourselves encompassed by one of them, which enables us to judge of all the rest. The Milky Way is a nebula, through the interstices of whose bright circuit we seem to get glimpses of the infinite. Herschell counted in it as many as eighteen millions of stars. Our own sun is but an islet amidst its many cyclades, a star of moderate size, with its satellites, not always visible to each other, revolving about the skirts of this prodigious system.

Partial order, general incoherence—such is the rule of the universe. The countless stars shining over our heads resemble the specks of dust we see dancing in a beam of light. The centre is everywhere, the circumference nowhere.

We have just made use of the term *infinite*. It is a very harmless word, shrouding no mystery, a negative adjective very legitimately converted into a noun. All the objects of our sensations are limited one by another; they are finite, since we distinguish them, and we do not doubt but that the same character applies to those which our senses have not yet grasped, or ever will succeed in grasping. Hence it is not to the objects themselves but to their number, to their succession, that we apply the term infinite. Being unable to count them, we use the word to signify our impotence. What more natural? In every direction the

number of things is endless. Will it be said that we leave the relative for the absolute? We are unconcerned with such distinctions, which may be neglected once it is admitted, and understood that all human knowledge is necessarily relative to its conditions.

Incapable of discovering a limit in the juxtaposition of things, we are equally incapable of conceiving it. Nothing more than this is implied in the idea of the infinite, on which has been lavished so much sentimental eloquence. Ordinary language has converted the infinite into an inseparable quality, and consequently a synonym, of the universe, of space. Metaphysics have seized on this notion, so clear and precise in itself, detaching it from the totality of things, subtilising it to an essence, from a mere *concept* deriving a *being* at once impersonal and endowed with all human faculties, an overlapping deity, who is himself not overlapped, that is to say, a finite infinite, since he is limited at least by our own existence. And for thousands of years philosophy has been nourishing itself with this empty verbal contention. For us the infinite must remain what it is—the succession of all finite objects without any conceivable end; or else the general term expressing the character of this succession—the absence of the finite.

In time and space there is no more or less reality than in the universal order, or in the infinite. They may be said to be real as the quality of things, but not as things or beings in themselves. They are the relations of the simultaneous or of succession, sequences of finite measures, added one to the other, whence we induce the immensity and eternity of the universe. But a space endowed with qualities or attributes, a time acting and carrying us along with it, are concepts void of all objective reality. There still exist nothing but elements and their combinations, considered either as simultaneous or succeeding each other. When we say space contains all things we simply mean that all that we see co-exists, and that between objects our sight and our touch detect distances. When we say all takes place in time, we must be understood to mean that all phenomena, all contacts occur either

simultaneously or successively. Simultaneous or synchronic facts are said to take place at the same time ; successive facts each in its turn, *from time to time*.

Certain events occurring in a constant order, the apparent passage of the sun at the zenith and nadir, day and night, &c., have been adopted as the measure of all succession ; hence days, years, hours, minutes. Time and space are nothing more than certain manners of being of things in respect of the impressions produced by them on our senses and brain. If it is difficult to reduce to their proper function of useful abstractions terms so early personified, it is at least easy enough to explain that these terms are neither beings, nor *concepts* independent of substantial reality.

Amongst the bodies scattered throughout infinite space, there is one in which we are interested beyond all others—the orb of which our earth is a satellite, an appendix, a portion.

Apart from a few intuitions of the ancients, it was supposed until the time of Copernicus that the earth was the centre of the universe, and that the sun, like the moon, revolved round it. We now know that if the sun revolves it is around some remote and unknown centre in the neighbourhood of the constellation of Hercules. Relatively to the earth it is motionless, and it is the earth that attends it in its still undetermined course through space. But the earth is not alone, for it is accompanied by eighty-seven other worlds of various sizes, all sharing in its captivity.

A class of society forming the orthodox party has been greatly troubled by this discovery. They began by defending the "sound doctrines," protesting in the name of Jewish traditions that the sun necessarily moves, since a certain Joshua arrested its career on a certain evening. In order to oblige these silly people, at whose command, however, were certain forcible arguments, such as pincers, the rack, the block, the dagger, and the stake, a learned astronomer, Tycho-Brahé, compromised the matter by separating the earth from its fellow-planets. By restoring its immobility it was reinstated in its former dignity, to effect which he caused the rest of the system, the central orb included, to revolve round the earth. It was an ingenious compromise ; but irresistible proofs,

which need not be here repeated, seeing that they are no longer seriously questioned, clearly demonstrated the double motion of our planet.

In order to explain the formation and disposition of the solar system, the illustrious French geometrician Laplace proposed an ingenious hypothesis, which seems so far to harmonise with most of the results of science. A gaseous substance whirling round a centre, as the ideal point; around the nucleus numerous concentric layers of this substance, cooling down irregularly, passing to the state of incandescent rings, then becoming liquid and solidifying in various degrees of intensity, each forming a globular mass, which more or less rapidly continues the initial motion of the annular layer. The central nucleus is the sun, the layers transformed to globes are the planets. Hence the common motion of the system and the particular motions of its members. Hence that constant phenomenon by Newton called gravitation. Like Newton's law, the hypothesis of Laplace may be applied to the whole universe. In our sun and in all the others it shows us the layers, unequally cooled and condensed, of still vaster vortices.

In fact all the planets revolve round their own axes and around the sun. Omitting the minor ones, they are disposed, according to their distance from the centre, in the following order: Mercury, Venus, the Earth, Mars, Juno, Jupiter, Saturn, Uranus, Neptune. All are opaque bodies, receiving from the sun a light easily distinguished from the twinkling of the fixed stars. The four first at least have arrived at the solid state; Jupiter and Saturn are semi-liquid; Uranus and Neptune still in the gaseous state. All are enveloped in a gaseous and spherical layer, an atmosphere. Several are accompanied by satellites which, turning on their axes and around the planet, attend it in its course round the sun, describing about its orbit an endless spiral, analogous to the circumvolutions of an elastic spring. Our planet's satellite, the moon, being brought by the telescope within sixteen or even four leagues of the earth, has been better studied than any other heavenly body, at least in one of its hemispheres; for we see only the side turned towards the earth, which by reflecting the solar

light assumes the shifting forms we call its phases. It is separated from the earth by a moderate distance which an express train would traverse in three hundred days.

It is now believed that the moon has not always been the only satellite of the earth. Another is supposed to have existed, whose fragments, still revolving in their old orbit, are constantly falling as aerolites or meteorites on various parts of our globe. The state of this body thus crumbling to dust assuredly awaits the moon also, as well as the earth, the other planets, and the sun itself. As to the moon, it seems already deprived of an atmosphere and incapable of developing on its surface any life similar to that of our flora and fauna. Its seas have evaporated, and it presents to the eye nothing but formidable rugged features, extinct volcanoes, and bare depressions.

Of the larger planets, Mercury and Venus alone are deprived of moons; at least none have been discovered belonging to them. Mars has one recently detected, and the other planets have as many as six or eight. Besides, Saturn is encircled by one or several rings of a still undetermined consistency, but probably gaseous like the tails of the comets, and destined ultimately to be condensed into moons. In the zodiacal light, at times projected in the form of an elongated and truncated ellipse across the surface of the earth, some astronomers recognise the reflection of a ring analogous to those of Saturn.

We already know that the planets are not the only attendants on the sun, and that seven comets form part of its suite. Of some two hundred others, whose return has not yet been determined, and whose orbit approaches the hyperbolic curve, several are no doubt mere visitors traversing the solar system, and which have not yet found a centre.

The sun is the absolutely indispensable condition of the existence of the planets and of everything produced in them. "At times," says Humboldt, "its action is manifested quietly and silently through chemical affinities, and determines the various phenomena of life, in plants by the endosmosis or inward transmission of matter through the cellular membranes, with animals in

the tissue of the muscular and nervous fibres ; at other times it causes electric discharges in the atmosphere, waterspouts, hurricanes. The luminous waves do not act on the substance of bodies alone, but are also in mysterious relation with the inward man, with the more or less quickening action of his faculties."

A few figures will give some idea of the relative immensity of the sun, and by inference of the stars, as well as of the enormous distances separating the heavenly bodies.

"Unlike the planets, which are flattened at the poles and bulge out at the equator, the sun is perfectly spherical, and has a superficial area of 2,477,320,000,000 square miles. Its bulk, 364,000,000,000,000,000 cubic miles, is six hundred and twenty-seven times greater than the united volume of all its satellites, one million four hundred thousand times the volume of the earth. Compared to the sun the earth is but one of fourteen hundred thousand grains of wheat.

The solar matter weighing no more than about one-fourth of the terrestrial, the mass of the sun is still equivalent to three hundred and fifty-five thousand times that of the earth. The weight of the sun amounts to 2,960,000,000,000,000,000,000,000 tons.

The sun is situated at a mean distance of ninety-three millions five hundred thousand miles from the earth, and would be reached in three hundred and forty-seven years by an express train going at the rate of thirty-one miles an hour. Were it connected with the earth by an atmospheric medium, sound would be transmitted from one to the other in fourteen years and two months ; light, which travels at the rate of seventeen thousand leagues a second, reaches us in eight minutes eight seconds. In one second it would make the round of the globe seven times.

The spectroscope has detected the existence, in the pure state, of some of our chemical elements in the solar substance ; amongst them are sodium, iron, nickel, copper, zinc, baryum, perhaps cobalt. But how do these bodies act in that medium ? What forms do their combinations produce ? We already know that its substance, being less dense than that of the earth, could not support the same weights, nor consequently living beings similar to

man. Is its central nucleus opaque, that is to say, to some extent solidified, as Herschel and Arago have supposed? Or is it incandescent in the fluid or gaseous state? But, pending the solution of these questions, whatever be the nature of this nucleus, we know that it is still enveloped in various atmospheric layers, one of which, the photosphere, is exposed to tremendous storms. These are the famous solar spots now being actively studied, and which are so vast that the earth would, if placed in one of them, look like a rock in a crater.

These summary remarks on the sidereal and solar worlds will suffice for our purpose. They seem to place beyond dispute the following propositions too much overlooked by metaphysicians. In the first place, if no simple elements existed, such as we call matter, there would be neither bodies nor attributes, qualities or faculties of those bodies; secondly, if a sidereal mass called the Milky Way did not exist, neither would our sun exist; thirdly, without the sun, there would be neither the planets that we behold, nor the earth where we live and die; lastly, without the sun and the earth, where would be the beings which the heat of the one vivifies on the surface of the other? What idealism or scepticism can escape from the irresistible chain of those conditions which link the atom in motion with the brain at work?

And now, leaving the immensity of the universe, the nebula and the sun with its eighty-seven planets, of which we occupy the fifth in order of size, we will devote ourselves to this modest globe, but for which we would have no existence.

The earth, a minute fragment of the great luminary, so small that from Jupiter an observer provided with a Foucault telescope would detect it just five minutes after sunset and before the dawn, becomes a prodigious mass for us, who can scarcely rise six or seven feet from its surface. Let us state at once that it is in no way privileged, that its place in the solar system is determined by its mass, that its productions are conditioned by its component substances, that it cannot escape from the motions either common to the stars or peculiar to the planets, that it is irresistibly subjected with all it contains to the laws induced by physics and

chemistry, and which are the expression and summary of the inevitable.

The earth is a spheroid, unequally flattened at the two extremities of its axis, that is, at the poles, and bulging on the line most removed from these ideal points, a line named the equator, because day and night are here of equal duration. The equator is cut obliquely by the ecliptic, that is, the imaginary line marking the course of the earth round the sun, the elliptical orbit it describes in its motion from west to east.

The globe has a circumference of twenty-four thousand eight hundred and ninety-seven miles, and an area of one hundred and ninety-seven million square miles, its volume being 260,000,000,000 cubic miles. It completes its revolution round its axis in twenty-four hours, and its course round the sun in somewhat less than three hundred and sixty-six of those revolutions. In the spiral ellipse described by its orbit, and of which the sun is one of the foci, it travels with a mean velocity of about nineteen miles per second, that is about sixty times the velocity of a cannon-ball. But this velocity is accelerated or diminished according as the earth approaches or recedes from the sun. Nor is it uniform for all parts of its surface, being null at the poles and greatest along the line of the equator. The distance of the earth from the sun varies between ninety-three and ninety-five millions of miles.

To the double movement of rotation round its axis and revolution round the sun must be added the general motion through space of the whole solar system bodily, a motion twice as rapid as that of the earth's proper motion. Our globe moves in company with the sun a distance of 1,390,625,000 miles every year in the direction of Hercules, being at the rate of over forty-four miles per second. Nor is this all. Attractions of every sort, lunar, solar, planetary, sidereal, acting either simultaneously or successively, are continually disturbing the earth's motion, causing endless perturbations in its course. As it is more than probable that it never twice crosses the same points in space, and that it is indefinitely subjected to varying and ever-fresh influences, the most careful calculations can give no

more than an incomplete and approximative estimate of its path through the heavens.

But from all these combined actions there result a great many phenomena which play an essential part in the terrestrial destinies, phenomena regular in their irregularity, and which astronomy and physical geography detect without being always able to discover their causes. We know, for instance, that *nutation*, as it is called, is an effect of lunar attraction, that the *precession of the equinoxes* is due to the balancing of the polar axis, which is said to turn upon itself once in two hundred and fifty-eight centuries. But why is not this axis itself perpendicular, or at least more perpendicular than it is to the solar centre? Why is it inclined to the ecliptic, which again does not coincide with the equator? Why does not the centre of gravity of the earth correspond with the centre of the globe itself, or the magnetic poles with the polar axis? Has it always been so? Is not each of these peculiarities, the remote causes but not the consequences of which are dimly perceived, one of the elements in the history of the earth, possibly associated with successive changes in the cosmic medium traversed by the sun, or in the temperature and constitution of the globe? Doubtless such is the case; but the answer is as vague as it is summary, and consequently cannot entirely satisfy science, which continually meditates on these things, and, passing from hypothesis to hypothesis, will some day hit upon a theory confirmed by experience.

In its present state the earth presents its entire surface successively to the direct or oblique rays of the sun. It is evident that, were its axis merely a prolongation of the solar radius, one of its hemispheres would always be in darkness, and would remain in ignorance of the very existence of the great luminary. From its inclination proceed the distribution and vicissitudes of the seasons, the increase and diminution of the days and nights. Observe also that of the astronomic phenomena there is not one which does not regulate some series of facts necessary to the development of life. It is an uninterrupted concatenation, in which no one phenomenon can be isolated from all the rest; the

breaking of a single link would involve the destruction of everything supported and determined by the chain of events. From the logical or rational point of view no casual link connects consequent with antecedent, for all things succeed each other in some given order which no sophistry can disturb. Causality, which in some way attributes to the antecedent the intention of producing the consequent, finality, which transforms the last observed effect into the cause of all that precedes it, and but for which it would not be, are idle anthropomorphic expedients; the one can add nothing to, the other can take nothing from, the reality.

Hesiod calls the earth "the ever stable abode of men and gods," a great truth involving a signal error! The ancient poet felt irresistibly that without the earth there would be neither men nor gods; but when endowing it with the quality of stability he forgot that he himself had sung the primordial chaos and the contest of the Titans. Astronomy further tells us that our globe is not stable, at rest in space, while in its turn geology shows how little it has been so in time. The successive stratifications with their several floras and faunas have revealed in the crust of the earth the endless changes undergone by the consistency, temperature, and productive activity of the globe. Each of these layers sums up an epoch in its history, so that beneath our feet lies buried the history of myriads and millions of years. The thread of these annals becomes broken by general and partial accidents; cosmic influences, the slow action of air and water, subterranean absorptions, plutonic eruptions, subsidence and upheavals, ebb and flow, sudden catastrophes (for it would seem necessary to take into account all actual causes without committing ourselves to any exclusive theories), all these agencies of change have never ceased to mould and knead the earth's surface. Under their potent influences the deposits have often become confused and thrown into capricious heaps. The most ancient have occasionally come to the surface, rising even to great altitudes, while others have become engulfed in the ocean. And these operations are still going on under our eyes. Although modified by the very sequence of their efforts, the causes of the past are still the causes of the present and

future. And man, who has already beheld repeated changes in the face of the earth, who still preserves the faint recollection of these fluctuations, fancies he enjoys a more lasting respite; for in truth, how is the individual, a fleeting object, concerned with the revelations reserved for remote generations? But in its apparent stages of rest nature still prepares changes as unknown as they are inevitable. She shakes the ground which we sometimes feel giving way beneath our feet, hurls the ceaseless tides against the rock-bound shores, or else elevates the river deltas, and beneath the waters erects the coral pillars destined to uphold new continents. She accumulates the masses of ice round about the north pole which will some day cause the axis of the globe to tilt over; she cools the sun, perhaps, and retards the motion of our planet. Has she not already reduced to aerolites a vanished moon, and dried up the one that still remains? In all this we see the eternal fluctuations that filled the pensive Heraclitus with sadness. We also are irresistibly borne along; but of what avail useless complaints against the inevitable? Since we change even more rapidly than nature, since the shortness of life produces the illusion of universal stability, an illusion which for us becomes the reality, true wisdom consists in thinking and in living, in studying and modifying to the extent of our faculties and interests this course of events which seems destined one day to end with ourselves. We see it approach from the depths of the past, and we follow in its track from the bowels of the earth to the surface to which it has borne us.

CHAPTER II.

THE LIVING WORLD.

§ 1.—*Organic Evolution.*

WITHOUT entering into any of the technical explanations imposed by their very object on astronomy and geology, we have followed

the evolution of matter from the formation of the stars and of our spheroid to the dawn of vegetable and living organisms. Before summing up what science teaches us concerning the nature and succession of the living series, we must study more closely the conditions of their existence, as determined and defined by biology. These conditions, which no abstract reasoning could ever determine, have been produced within a certain time, in a definite area. They flow themselves from anterior states, from possibilities apart from which it is impossible to conceive them.

There is no essential difference between organised living bodies and inorganic substances, both being composed of the same elements. Everything in the universe is formed of dissimilar atoms variously combined, the different aspects of things resulting from the different manners of atomic combination. All the changes taking place on the surface of the globe are due to combinations either in course of development or of solution: changes of molecular structure, decomposition of compound molecules, addition, subtraction, substitution of atoms or of molecules.

But, on the one hand, organic nature does not employ all the elementary substances; into the structure of the vegetable and living tissues it admits no more than about eighteen: carbon, hydrogen, nitrogen, oxygen, sulphur, phosphorus, fluorine, chlorine, sodium, potassium, calcium, magnesium, silicon, iron, lithium, manganese, iodine, bromine. On the other, organised matter is endowed with extreme powers of motion; it is a veritable vortex of atoms, of unstable components, because nitrogen, carbon, hydrogen, possessing but few and weak affinities of combination, do not form aggregates solidly fused together.

All living forms comprise, first of all, bodies susceptible of crystallisation taken directly from inorganic nature, water, salts, all of which leave the organism in the same state in which they entered it; secondly, bodies subject to crystallisation and volatile, elaborated within and by the organism and rejected by excretion, whether acids (tartaric, lactic, uric, citric) or alkaloids (kreatine, kreatinine, urea, caffeine), or else fatty or resinous (sugars of grapes, liver, milk, cane); lastly, and above all, bodies incapable

of crystallisation, but liable to *coagulate*, formed within the organism by the principles of the second class, and which are the pre-eminently organic substances: globulin, muscudin, fibrin, albumen, casein, cellulose, starch, dextrine, gum, and the colouring matter, such as hæmatin and biliverdine; in a word, *crystalloids* which penetrate by diffusion the porous membranes of the cells, fibres, and organs, and *colloids*, gelatinous or glutinous, which are diffused slowly and in small quantities. Every organised body is a compound of colloids holding crystalloids in solution, and in a state of perpetual renovation.

In these complex and unstable bodies, which are being incessantly decomposed and reconstituted under the influence of chemical affinities, and of the action of caloric, electric, and luminous waves, the part played by the first elements is very unequal. As in the atmosphere, that of hydrogen, oxygen, nitrogen, and carbon preponderates; but carbon especially forms the base of all organic substances, entering into the composition of blood in the proportion of fifty to one hundred, and forming the link between the atoms which compose the living molecules.

Without realising the true colloids, synthetic chemistry has still been able to recombine some transitional groups, carbureted hydrogen, alcohols, ethers, ternary acids, fatty substances; then nitric bodies, urea, taurine, gelatine, sugar. Some day it will succeed in taking directly from the mineral world fibrine, albumen, caseum, the true aliments of man. Will it go still farther, and create living cells and organisms? Without forestalling the future, one feels rather inclined to decide in the negative. If chemistry could on a given point artificially reproduce the high temperatures that seem to have been needed for the dawn and development of life, how will it be able to command the vast duration and the exact succession of the geological epochs? However far it may go in the path of synthesis, it may well be doubted whether it will ever actually cross the limits of life. Its destiny will rather be to innovate, to constitute bodies hitherto unknown to nature, than to group living molecules in animate organisms. The work of ages cannot be re-done.

And what can it matter if by operating on bodies, such as they are, analysis should discover the series of relations of which life is the result? Life is neither a principle, nor a force, nor an archeus, but a particular state of matter, an exchange of materials between organisms and the exterior world. "Life is a twofold motion of composition and decomposition, continuous and simultaneous, going on in the interior of plasmatic substances or of anatomic elements moulded to certain forms, which, under the influence of this inward motion, act in conformity with their structure." (Letourneau, "Biology.") But all notion of force or motion is reducible to that of combination, of state, and, lastly, of active material substances. Thus, the fundamental force of organisms resolves itself into the fundamental force of the cells and fibres deriving from them. Motory power is defined to be the property peculiar to certain organised bodies of displacing themselves, or of contracting spontaneously and independently of all outward mechanical action. Still, the outward mechanical actions, and the general exteriority of the cells with respect to each other, must not be overlooked. Spontaneity is but the result of particular reflex actions.

It is the physical and chemical properties or manners of being of the compound bodies that are found to form the base of the so-called vital functions, from nutrition to innervation. Without matter there is no nutrition; without nutrition no living being. Without innervation, that is, the aggregate of the superior functions transmitted to the cells and nervous fibres, there would appear to be no sensibility, and, *à fortiori*, no consciousness, thought, or will.

It is impossible not to recognise the essential connection between the two, even if our study of the vital phenomena be confined to man alone. We see them in the infant follow each other successively from the formation of the egg to the awakening of the senses, and determining the development of all the animal and purely human faculties. We trace them in the individual, from the external impressions to the brain, from the brain to the periphery. But however little we may descend from the highest

towards the lowest of the series, it will be recognised that its roots are planted deeply in nature, that the upper depend upon the lower stages, that the organic is the outcome of the inorganic.

It is scarcely worth while here to rebut one of those hollow arguments with which logicians profess to be satisfied. Life, they tell us, cannot proceed from what has no life; matter cannot produce thought, it cannot give what it does not possess. The superior cannot spring from the inferior. Positivism itself has retained some of these axioms, for in the explanation of the more complex phenomena it refuses to introduce the method applicable to the study of those of a more simple order.

But in the first place, superior and inferior are comparative terms, whose value is relative only to our habits of thought. In nature there is neither superior nor inferior; in it we see nothing but simultaneous or successive states of material aggregates. But, arguing even from the logical point of view, the superior has no greater or less rights to produce the inferior than has the inferior to produce the superior. If, as a matter of fact, the living state is a particular combination of bodies otherwise destitute of life, if thought is the motion of certain molecules arrived at in the living state, what becomes of the verbal illusions of logic? Now, we are fully justified, not only in asking with Locke, Voltaire, and many others, why substance should not think, why the combinations of lifeless elements should not determine certain phenomena which we call vital; but also in maintaining that matter is the condition of life and thought, that it is implied in the conception of life and thought. To live, move, and think, we must exist, we must be a body limited by other bodies, a distinct individual.

Motion is the general state of the primary elements, the great factor in molecular combinations, which in their turn determine and vary it indefinitely. Not only do vast series of groups communicate to each other various motions named attraction, magnetism, electricity, heat, but every individual has its own proper motion besides those it has in common with its like. This law may unerringly be applied to all and each of the primary elements and their aggregates—to all and each of the stars, rocks, and so on;

and to each motion corresponds a form and a state—fluidity, crystallisation, cell, vegetable or animal organism, sense, thought.

Motion is no more nor less spontaneous or passive in the atom of oxygen or chlorine than in the most complex aggregate of atoms ; the motion preceding the will and that which follows it are as much determined as determining. Placed between the two we attribute to ourselves the initiative of the second, whereas we merely transmit it by adapting it to the mechanism of our structure. As in its passage from the springs of the living organism it becomes transformed and differentiated into sensation and conscious intelligence, it seems free, independent, foreign to that whence it sprang and by which it is sustained ; and to a certain extent it is so, that is, so long as the mechanism lasts in which it becomes concentrated and applied to a thousand different purposes. In the same way the flowing stream, which we change to waterfalls, fountains, ice, or steam, belongs also to us until it has crossed the limits of our grounds.

No doubt, if the diamond thought, but that it would attribute to itself the force that crystallises it. Now it is precisely this force that causes it to exist, that is inseparable from the very fact of its existence ; and by force we understand the relations resulting from certain combinations of substance. The diamond is a body, and it crystallises ; the dog is a body, and he runs, feels, thinks. These are two identical propositions. But whence comes it ? If the one did not crystallise, if the other, constituted as he is, did not live nor feel, the same question might still be put. Such is the case, and however far back we may go for an answer, we shall have still to return to the *quia est in eo virtus dormitiva*. Molière's expression is even more profound than humorous.

The beginnings of life were very lowly. Daughter of the waters, she was born, or at least was first roughly planned in some of those swamps formed by the atmospheric vapours amid the crevices of the primitive crust. What was the nature of those liquid masses ? Assuredly they can have scarcely resembled the waters of our oceans, the clear currents of our streams. The air whence they were distilled, the almost burning soil that received

them, mingled with them in unknown proportions the combined substances fused together by incalculable heats. Carbon, nitrogen, sulphur, lime, silica, floated in their midst, composing semi-fluid aggregates, formless viscous substances, already elastic and retractile, still wavering between vegetation, and life. Here is the whole mystery of spontaneous generation, which is no more nor less admissible for the colloid than for the crystallised state of matter. Like all other manners of being, life had for its sufficient and necessary condition the combination of certain elements in a given medium. The organic contains nothing that is not contained in the inorganic, differing from it in structure only ; the materials of both are the same. This truth was guessed at by Diderot, and developed with a fascinating charm in his "D'Alembert's Dream."

The history of life, as recorded in the terrestrial layers, is full of gaps and obscurities. They are but scattered chapters and fragments, half-effaced or unfinished footprints, *débris* worn away by the waters and acids, overthrown by the countless motions of a crust that has been indefinitely renewed. But notwithstanding this inevitable confusion they still bear witness to a constant progress in the structure of beings. The more we pierce the depths where lie buried the remains of extinct animal and vegetable species, the more simple, uniform, and imperfect we find them. The nearer we approach the surface on which man reigns supreme, the more intricate, delicate, and nicely adjusted becomes the mechanism. Ever since the time lost in the mist of ages when life first emerged from the colloid cellular states, it has never ceased to adapt better-balanced apparatus to continuously improving surroundings. Leaving aside the vegetable kingdom, which from the first pursued an independent course, and the more lowly groups of animal life, if we apply the law of progress to the higher organisms, we shall see the fish, the amphibia, reptiles, and birds before co-existing, announcing each other successively by the apparition of their more rudimentary forms, and the order of mammalians gradually developing from the marsupials to man.

The history of organic evolution is divided into five unequal ages, each with its special epochs again subdivided into periods.

to which have been assigned the names of the regions or living types characterising them, and whose duration is approximatively measured by the thickness of the deposits.

I. The primordial, or archæolithic age, comprising the Laurentian, Cambrian, and Silurian periods, presents an extremely poor fauna and flora, both aquatic, which, starting simultaneously from the lowest depths of the Laurentian period, branch off into forests of algæ, confervæ, fuci, into multitudes of rhizopods, molluscs, and crustacea. The vertebrates do not appear till the last stages of the Silurian period, and then under the form of cartilaginous fishes. The *cozoon* Canadense, the oldest of known fossils, whose silicious or calcareous remains have been preserved in the lowest Laurentian layers, seems to have belonged to the family of the rhizopods. In this primeval shell, a residuum of nutrition, a product of digestion, there dwelt a minute being of the lowest type, little more than an atom, mere protoplasm or aggregate of cells, without organs, entrails, or skeleton.

II. The primary or palæolithic age (Devonian, Carboniferous, and Permian formations) witnesses a profuse development of the orders of ferns and the lower fishes. In the coal measures, vast remains of carboniferous forests, we for the first time detect the presence of land and aerial animals, insects, and arachnida leading a dreary existence beneath the foliage of flowerless plants, strange amphibia and reptiles crawling along the slimy banks of the still and running waters.

III. The secondary, mesolithic or mesozoic, age (triassic, Jurassic, chalk formations) is characterised by the predominance of the conifers and saurians. But in the midst of countless and gigantic reptiles the first birds already flutter in the air, the first mammals, monotrematous and marsupial, begin to swim or walk on dry land. In the chalk period are multiplied the orders of plants that cast their leaves, and while the higher forms are being slowly evolved, the lower types do not remain stationary. One fact bears evidence of the intensity of rudimentary life: the entire thickness of the chalk formation is composed of accumulated microscopic shells.

IV. The tertiary or Kainolithic age (eocene, miocene, pliocene

formations) adds to the population of the world the higher birds and mammals. • Faint and rare indications, which seem no longer open to controversy, enable us to refer the first appearance of man, or rather of the precursor of man, to the pliocene period. A few striae scored by a sharp stone on a marrow-bone constitute the first-known piece of workmanship—the oldest reminiscence of our progenitors. What was the character of this man of the tertiary period? Did he climb the menocotyledonous or dicotyledonous trees to reach their fruits, or seek refuge in their branches? Did his well-set teeth tear the quivering flesh of animals hunted down or ensnared? Or, stretched on the sands of the sea-shore, did he watch for the mollusc or the fish? Did he speak? Who shall now say? It was of these remote ages that Lucretius thought when he traced the admirable picture of primeval man, of man the supreme effort of living matter, with whom closes the organic cycle. Henceforth fresh forms are but modifications of types transmitted by generation, perfected by successive outward influences. At the lowest stages of being, in the depths of the waters, nature may perhaps be still evolving infusoria, monads, amœbæ; but since the chalk period the families, if not the species and varieties, seem fixed, and are no longer recruited except from within themselves and by invariable processes. Those that perish are never replaced.

Still, although in the general aspect of its forests, plains, and denizens the tertiary world was not unlike our own, it would have had many a surprise in store for the present generation, were it momentarily transported back to those times. In vain we would seek, I do not say for London or Paris, but for the very sites of those cities. On upheaved lands, islands, and continents then flourishing, but since submerged beneath the waters, no vestige was yet visible of human workmanship, neither town, hamlet, nor hut. Everywhere, breathing a uniformly warm atmosphere, roam confusedly amidst the plants of every clime the animals of every zone; for cold is not yet. Naked or hairy, like their congeners the larger apes, tribes of semi-bipeds feed on the acorn, sport in the cedar branches, plunge into the stream in pursuit of some

precursor of the pike, or else cling to the mane of the hipparion. Woe to the young of those primeval equidæ if the great cave-cat met them in the thicket. But man has already learnt to walk erect and to strike. Constantly hungry, often a prey, still more frequently victorious, the air echoes with his death-cry or shouts of triumph. He helps in the extinction of the old races bequeathed by past ages to the world he is about to subdue, and prepares to enslave those animals destined to survive with him for fresh revolutions. Thus approaches the epoch of human supremacy.

V. The quaternary or anthropolithic age, the era of men and of cultivated plants, is characterised by the development of the human organism, and of civilisation, which, however, occupies its last and shortest period only. It adds but an insignificant layer, some two hundred yards, to the enormous deposit of the preceding ages, amounting to forty thousand yards in thickness, though even this is itself insignificant when compared with the length of the earth's radius, which again is but a point in space. Nevertheless, thousands of years, during which the chipped, cut, polished celt succeeds to the primitive pebble, separate its beginnings from the epoch when history commences, and which may be called the epoch of the peoples. All history, from the most remote past down to our days, probably some seven thousand years, has been transacted on the surface of the most recent alluvion.

The oldest strata of the quaternary age, the diluvial formations, bear the marks of extraordinary fluctuations in the temperature. Cold has at last made its appearance.³ A mass of ice has been banked up at the poles; it encroaches on the temperate regions; the glaciers move down the mountain-sides and bear to the valleys those moraines now being discovered there; in their descent they extirpate the feeble races, give vigour to the strong, taxing the energies of the skilful, compelling the prudent to migrate. Man has endured this lowering of the temperature, and come out victorious from the struggle, thanks to the cave, the hut, his garments of skins, and the invention of fire. Less fortunate were the larger feline animals, the gigantic bears that lived in temperate Europe,

the ancient mammoth overtaken and preserved by the ices of Siberia. The distribution of the animal species in the regions still occupied by them is a result of the glacial revolution. Their habits are now fixed. Those that were able to survive in their native homes, as well as those that took refuge under other climes, have adapted their habits, their dispositions, their very hides and furs, to the exigences of their old or their new countries. The causes of this epoch of general and intense cold remain altogether beyond our ken. A lowering of the sun's temperature, or of that of the interplanetary spaces traversed by the solar system, and the extinction of many thousand stars, may have concurred with the slow accumulation of ice at the fixed poles to produce this effect. Though incapable of verification, such causes may at least be assumed, all the more that an increase of heat equally difficult of explanation, by tempering the excessive regions of the cold, and reducing the glaciers and ice-fields to their present limits, gradually put an end to the glacial epoch, and imposed on life those conditions which we now enjoy and from which we suffer in turn.

It is since the re-establishment of this normal temperature, such as it is, that the earth is divided into five zones of which three are habitable and two favourable only to the development of civilisation. May we venture to observe incidentally, without incurring the reader's indignation, that the conception of a supreme wisdom and of an unfailing goodness would seem to be somewhat indifferent to such a distribution of the climates? All estimate of geological duration is not merely impossible but necessarily imperfect; for we are ignorant of the causes, though they must have existed, which may have quickened or retarded the progress of the sedimentary deposits. Still we shall scarcely err in admitting that the thickness of the layers is at least one of the principal elements in the calculation. By taking account, within due limits, of this datum, and dividing into a hundred equal parts the time, whatever its actual length, that has passed since the dawn of life on the earth, we shall be led to attribute to the primordial age more than one half of the whole duration, say 53.5; to the primary, 32.2;

to the secondary, 11·5 ; to the tertiary, 2·3 ; to the quaternary, 0·5, or one-half per cent. In any case, the alluvial epoch, during which was developed the ascendancy of man, was unquestionably the shortest of the four quaternary eras. And what is even the duration of the organic evolution itself compared with the eons that preceded it, and which witnessed the hardening of the earth's crust, the igneous, gaseous, annular states of what has become our sphere, the separation of the planets and the condensation of the primary elements into stars and nebulae ?

Here becomes apparent the improbability, not to use a stronger term, of the teleological sophism. For how is it possible to suppose that this moment of time in which we are now placed can have determined beforehand the prodigious course of these eons ? What purpose can be served by calling final cause the last effect produced by an accumulation of antecedents ? Before the existence of man the monotrematous order, the bird, the reptiles, the amphibian, the fishes, the molluscs, might just as well, each in their turn, have proclaimed themselves the final causes of the universe. And in the event of man himself being ousted, or relegated to the second rank in the scale of beings, would he not cease to be the final cause of all things ? Strange illusion of the logical mind, from which even the wisest find it difficult to escape ! The "organic" or "guiding" ideas, invented by Claude Bernard, are after all but other names for Providence, executors of the divine order and design.

All that experience attests is the subordination of the consequent to the antecedent, which is the very reverse of the idea of finality. It was not because man exists, or with a view to his future existence, that the action of the waters on carbon and nitrogen has produced the colloid state, the germ of an ever-increasing and progressive reproduction. On the contrary, man exists because the *bathybius* has vegetated under the seas, because the earth's crust has become hardened, because in an atmosphere that may be breathed the gills have been transformed to lungs, the nervous system has become more subtle and concentrated ; and further, because plants, trees, rocks, metals, strong or nutritive beasts have

supplied him with arms, food, helpmates, materials for the arts and industries. The succession of beings is intimately associated with the succession of their surroundings, and the forms of living matter are inseparable from the conditions which have allowed of their being produced and propagated. •

Without in the least foreseeing the discoveries reserved for geology, the ancients already perceived that all things were not created at once, and as it were at a single stroke. Their cosmogonies, however vague or limited, already imply the idea of succession. Even Genesis does not introduce man till after the appearance of sun, moon, plants, and animals, and here Moses is in harmony with Hesiod no less than with Lucretius. But at this early date the question was not asked, in what order were the living forms produced, nor how was their number increased, nor how new organisms came to be added to or substituted for the older forms. Or rather this question was cut short by an answer which is a simple confession of ignorance. These details were referred to the caprice or the wisdom of creative powers. It was necessary to bridge over the gaps of science, and the gods and a God were invented for no other purpose.

This illusory explanation, consecrated by educational training, became a settled dogma and axiom. Whoso questions it is suspected of being a "freethinker," a dangerous subject. It has influenced even great thinkers, and we know how authoritatively Cuvier has adapted it to the fresh results of a science created by himself. According to him each successive period of organic life, marked by a revolution, was suddenly withdrawn with its flora and its fauna, to the bowels of the earth, making room for other floras and faunas created offhand with the ground destined to sustain them. Thus a complete hiatus intervened between the several layers, which were yet successive and uninterrupted accumulations of previous layers.

At the same time it would be a mistake to suppose that Cuvier's theory is of any service to orthodoxy. In what respect would a complete renewal of organisms in a new sphere be more wonderful than any other process? Hence, if reason, which is merely a

middle term ever varying between experience past and to come, has already rejected the hypothesis of radical revolutions, it has by no means done so because Cuvier, and after him Agassiz, have seen, or fancied they saw in it, a confirmation of the Judæo-Christian cosmogony, but because it is refuted at once by palæontology and natural history.

In the first place, cataclysms have played but a very subordinate part in the formation of the strata corresponding to the several organic ages and periods. Each successive layer is connected by a certain number of common features with that on which it rests, and the persistence of these features bears evidence to the slowness of the transitions. The extinction of fossil species is in no way coincident with the appearance of a fresh sphere. Many living types, and consequently many individuals, have lived through, not only several epochs, but several geological ages. Hence they have been able to adapt themselves to several successive mediums. And, when they at last perished, they were still replaced by other groups scarcely differing from them.

In the second place, and this is the essential point, the moment the cell is evolved from the all but amorphous and inorganic protoplasm, the transmission of life is effected according to certain methods, the nature of which, as known to us, is invariable. These methods may be summed up by one word—separation. A new organism is always separated from one or more preceding organisms. Whether effected by segmentation, budding, fission, or generation, reproduction everywhere preserves this characteristic; it is always a gemination or a combination of already organised forms. How then can we suppose that complex organisms were ever constituted *ex abrupto*?

But, it is argued, from the amoeba to man, all beings are born of their like; species never vary. On the other hand, all had a beginning. Hence their origin must needs have been either by spontaneous generation or by a special creation: for it is impossible to suppose that they can have sprung from different species; still more impossible to admit a genetic connection between one order and another, between one genus and another.

These objections of orthodox zoology are perhaps more specious than solid. The persistence of the hereditary groups, which we call species, not only suffers certain modifications in the present state, which, if rare, are not the less significant ; but palæontology further reveals a certain number of types denoting mixed or transitional states. Such, for instance, are the archæopterix, the oldest of the birds which still possesses the long tail of the reptiles whence it sprang ; the hipparion, precursor of the horse, whose toes are not yet blended together in a solid hoof ; besides, all those teeth of pachydermata, equidæ, digitigrada, whose gradual transformations M. Albert Gaudry has subjected to such careful analysis.

Moreover, horticulture and stock-breeding produce artificially, under our very eyes, innumerable varieties in cultivated plants and domestic animals. How many distinct breeds have also been developed amongst dogs, rabbits, the ruminants, fowls, pigeons ! Hence it is idle to endeavour to set limits to genus, species, variety, or race. The sterility of hybrids obtained by crossing two species nearly allied is far from being a uniform characteristic ; the leporidæ, for instance, that is, the offspring of the hare and rabbit, are fertile, while, on the other hand, crossing is rare, impossible, or barren even between certain varieties of the same species.

The distinctions established between the living groups—between hybridation and mongrel-breeding—have doubtless their advantage and their *raison d'être*. But their importance is otherwise purely relative. What race and variety are to species, species is to genus, to order, to class, to antetypes. If species are at present scarcely interchangeable, if variety is restricted to a definite circle, certain interesting indications would seem to limit such barriers and incompatibilities to the present age of the world.

A very strong argument in favour of variability is supplied by the science of embryology. Is not man in the uterus, or rather the being destined to assume the human form, each in its turn, a simple cell, a vegetable with three or four leaflets, a tadpole with branchiæ, a mammal with a tail, lastly, a primate and biped ? It is scarcely possible not to recognise in the embryonic evolution a rapid sketch, a faithful summary, of the entire organic series. Lastly, the

presence of atrophied or rudimentary organs, surviving their purpose, militates strongly in favour of a progressive development of living types.

More than a century before the theory of transformation had been raised to the dignity of a scientific hypothesis by Darwin, it had been conjectured by some daring minds. Telliamed's merman seemed to Voltaire no less fabulous than the triton and siren, the animated stones of Deucalion, or those ants of Phthiotis, mothers of the subjects of Achilles. Nevertheless, in De Maillet's geological romance there were already foreshadowed the outlines of modern biology.

As stated in the first part of this work, the honour of first seriously formulating the genealogical doctrine was reserved for the great French naturalist Lamarck. Geoffroy Saint-Hilaire's discoveries in the domain of embryology, the labours of Oken, Goethe's ingenious views on the *metamorphosis of plants*, could not fail to confirm Lamarck's hypothesis. But Cuvier was at that time supreme; and Cuvier, as much through prudence as conviction, upheld the dogma of successive creations and of the invariability of species. For more than thirty years his authority retarded the logical conclusion of the science he had created. However, this delay was not injurious to palæontology, which was still too young perhaps to secure a solid foundation for such a vast system, and which thereby obtained the time necessary to enrich and constitute itself.

Darwin came in due course, bringing to the theory the aid of his personal observations and experience. In his hands descent took its place amongst those comprehensive and guiding hypotheses, which serve as a luminous thread to science amidst the labyrinth of facts. Such is the true nature of laws, which induction lays down, deduction confirms or corrects by the test of observed facts.

Long before publishing his work on the "Origin of Species," Darwin had solved the problem involved in the theory of transformation. Observing how new botanical and animal varieties or species were artificially produced by the patient selection of horticulturist and breeder, he concluded that natural agencies had in the course of ages brought about the metamorphoses accelerated under

his eyes by human devices. For is it not nature herself that furnishes man with all the means at his command? There remained to be determined the causes by which the evolution of organic forms had been and is still controlled before and in company with human action. Of such causes Darwin recognised two: adaptation to the surroundings and the struggle for existence (resolving themselves however into one, the second being merely an accident of the first), whose effects are combined with those of inheritance. The same evidence, however, had also struck his fellow-countryman Wallace, so that he had merely time in a summary monograph to maintain the priority and independence of his discovery. Wallace's work on "Natural Selection" appeared simultaneously with the "Origin of Species," and if the theory now bears the name of Darwin, it is because Darwin developed it into a complete and coherent system. But even here he has had his precursors. Transformation belongs to Lamarck, and before Darwin it was put in a clear light by the eminent French botanist Naudin. Besides, the influence of the medium and the struggle for existence are expressly indicated by Lucretius.

But however this be, a more advanced state of human knowledge, and especially of the natural sciences, was in any case necessary in order to formulate the firmly connected laws, which sum up the doctrine of Darwin and of his most prominent disciple, Haeckel.

Living organisms, from the simplest to the most complex, proceed, like mineral bodies, from a combination of material elements. They are constituted by the so-called *colloidal* substances, which made their appearance in the form of protoplasm and cells as early as the Laurentian period of the archæolithic age.

They descend one from the other by direct reproduction, while modifying themselves according to the medium in which they have to live. It is this medium that determines the development or atrophy of organs and functions, the persistence or extinction, whether local or universal, of genera, orders, species, varieties, which lastly brings about a gradual selection between the various

animal types. The chief agent in selection is the vital competition, the struggle for existence, in which the victory is necessarily to the organisms best adapted to the surroundings; in short, to the strongest or best equipped. The medium comprises not only the general physico-chemical laws, not only the particular laws of the geological period and of climate, but also the inevitable relations of beings compelled to live together in the same place and in the same epoch. The universal warfare, which has served as the theme of so many emphatic commonplaces, and which De Maistre described without understanding it, was carried on especially between the most nearly related species, between those which were compelled under pain of extinction to struggle for the same food and the same dwellings. The weakest were either destroyed or subdued. Hence there survived those only who were most differently constituted; those who did not live at the expense of each other. Hence also the rapid destruction or the slow transformation of the endless transitional or collateral types, and consequently the rareness of the fossil remains that might enable us substantially to restore the genealogical sequence.

But there exist nothing but renovating and disturbing forces. The causes of variation find their corrective and counterpoise, as well as their allies, in the conservative powers of habit and inheritance, which each in its turn fixes and perpetuates the results of selection. If we pass further to an opposition residing chiefly in words, it will soon be perceived that, far from invalidating the theory, habit and inheritance form one of its complementary elements.

In point of fact what is habit? Like disuse, it is but a form of adaptation, while inheritance is the very condition of descent. Further, habit and inheritance are unintelligible taken apart the one from the other. For may not inheritance be defined: a transmission of habits, whether general or individual, physical or moral?

It is admitted that certain particular characteristics, the frequency of some trick or gesture, a weakly constitution and the like, are in the individual a remote inheritance of some long-forgotten ancestor. It is not denied that the voluntary movement of the muscles of the

ear, from the very fact that it is still possessed by certain individuals, may have formerly been a common property of all mankind; that the atrophy or the abnormal development of certain organs bears evidence of a previous state in which these organs had their use and were employed. The importance of such anomalies is recognised. Why therefore try to escape from the constant, and therefore all the more significant revelations of inheritance? Why refuse to the succession of the embryonic phases the authority that we accord to the accidental phenomena of atavism or of teratology? The return of a family peculiarity in the form of the nose or posture of the body and the metamorphoses of the human embryo, are all facts of the same order, of the same nature, and therefore require the same interpretation.

If, for instance, we conclude from an atrophied tail, from a flattened cranium, that such a person reckoned amongst his ancestors individuals with low forehead, apparent tail, erectile ears, why not conclude from the different phases of embryonic life that certain precursors of man existed in the form of amphibia, reptiles, fish, molluscs, radiata, and cellular nuclei? The true rôle of the transformation theory is scarcely recognised. It cannot be limited, with M. de Quatrefages, to race and species; it breaks through the circle in which you would vainly confine it, and takes possession of the whole organic series.

The illustrious professor we have just named is at present the most serious opponent, not so much of the ideas peculiar to Darwin—for he accepts both selection and the struggle for existence—as of the general theory proposed by Lamarck. In favour of the immutability of species he appeals to the argument of facts. He confines himself to the lines of a scientific prudence, worthy of all respect, and he reminds us that we should know where to be ignorant. But behind all this reserve there is felt the tyranny of certain metaphysical and religious prejudices. He is not alarmed at supernatural intervention; he is not convinced of the necessary concatenation of phenomena; he is unaffected by the gradation, visible as it is, notwithstanding innumerable gaps, in the series of forms, in the ever-increasing complexity of the organisms. Yet no creature

seems formed all at once—all proceeding from other analogous beings by the development of a cell or an ovulum. That any creative power whatever should operate by other than the natural processes is for the naturalist simply an impossible supposition. Either this creator (a conception which of itself explains nothing) amused himself by insinuating fresh movements into the germs engendered by previous organisms—in which case his fertility of invention adds nothing to the natural evolution—or else he had recourse over and again to the very spontaneous generation which M. de Quatrefages denies.

It is assuredly allowable to withhold our judgment. No living person has assisted at the production of beings. The origin of the amoeba, of the mollusc, and vertebrates, like the formation of the stars, remains buried in the night of ages. But if to the Darwinian induction, based though it be on the evident succession of forms in the past and on the no less certain testimony of embryology in the present, we decline to accord more than a hypothetic value, it would be childish to attribute even an equal value to the intermittent action of a divine caprice. It would be substituting chance for necessity, with no advantage to science.

While still remaining loyal to that inveterate deism which seems to form an integral part of the English mind, Darwin at least reduced to a minimum the play of chance in nature. After creating the primordial cell, his God, leaving his work to itself, returned to a state of repose. There are worthy Christians who have been by the conception of this honorary creator relieved from the troubles of providence. With them it is doubtless a case of *major e longinquo reverentia*—the farther God is removed the greater he is; the less he acts the nobler he becomes, his majesty increasing in the ratio of his uselessness—an illusion which will hold its ground a little longer. But Darwin has attracted the human mind to an incline where it cannot stop. According as the Deity, formerly present in our ailments, in the wind, the lightning, history, and the revolutions of the globe, shall withdraw from the sphere of action in time, his past will appear as obvious as his present uselessness. This cipher placed to the left of all the

numerical series, and adding nothing to the sum, will ultimately be given up. The transition from the inorganic to the organic, to the vegetable or living state will present nothing more supernatural than the evolution of the gland, the cell, or the ovum. Here we have facts and nothing more.* To explain is simply to verify and analyse them; it is to *unfold* (literally *ex-plicare*) their succession, and consequently, by means of induction, fill up the gaps in the series. Such is the principle and aim, such the meaning of the genetic doctrine. By removing theodicy and metaphysics from nature, Darwin has laboured more than he was himself aware to bring about the complete emancipation of thought. It is on this account that the master, his precursors, and followers, take their place amongst the benefactors of science and humanity.

The nature of our general adhesion to the great principles of transformation will, we trust, give rise to no misconceptions. We accept the method without discussing the system, which is beyond our competence and our subject. It matters little whether or not the evolution has been effected in the minute order ingeniously imagined by Haeckel. It has been accomplished somehow, and for us this is enough to render the theory of descent the most likely and comprehensive *natural* explanation of organic life. We shall be ever ready, as were Epicurus and Lucretius, to record all the corrections and amendments that may be introduced in the details of the doctrine.

Amongst the phenomena of which life is the indispensable condition, and which are nowhere produced except in the living state, there are none more interesting for philosophy than those of the mental and moral order. The time will come when the mechanism of thought and the emotions must be studied apart. But this rapid sketch of the organic world would be incomplete if the evolution of consciousness, will, understanding, and reason did not find its legitimate place in it. Man claims these faculties as his possession, as his special attributes, and prompted by pride and ignorance, he has isolated them from the organism from which they are inseparable. He has transformed them to essences foreign and

superior to the bodily substances, manifestations of a one knows not what, which comes one knows not whence, and aspires to return whence it came. In the first part of this work the reader has seen what problems and equally fanciful solutions, what insanities and disasters only too real have sprung from this illusion. So tenacious is its grasp that it still influences the most determined sensualists, the naturalists who fancy themselves most exempt from its sway, thinkers like Claude Bernard and Tyndall. Has not this last writer declared that "Were we enabled to see and feel the very molecules of the brain . . . were we intimately acquainted with the corresponding states of thought and feeling, we should be as far as ever from the solution of the problem, 'how are these physical processes connected with the facts of consciousness?'" we should, in short, still fail to understand the nature of the mind. But he may be reassured. There is no need of so much science to be able to identify intelligence with an elaboration of the organised substance. Headless trunks have been common enough, and an experience which has never been gainsaid, and from which there is no escape, has established the fact that thought, at least in man, is a product, a result of cerebral activity. It is quite another matter to determine the office and functions of the various regions of the encephalon in the formation, association, and persistence of ideas. This is a delicate and protracted problem, which vivisectioners will one day succeed in solving. But the preliminary, not to say essential, question, has already been settled. Intelligence is a general term, a category under which are grouped certain phenomena peculiar to the living organism.

At the same time these phenomena are not special to man. They are detected in the lowest rudiments of life; only they increase in number and intensity according as we rise in the animate series. The difference is one of degree, not of kind. No fact is more fatal than is this to the chimeras of anthropomorphism, and no fact is at the same time more certain. Here the Darwinian laws of selection, of the struggle for existence, of habit and inheritance, are liable to none of those exceptions and gaps presented by the evolution of forms. Here are no hypotheses; nothing but

direct observation. The history of the evolution of thought may thus be written step by step.

The first characteristic of life is motion, a motion generated by a medium in a determined form; it is also the first condition of all conscious, intelligent, and voluntary manifestations. The more this internal motion is complex and independent of the medium which yet sustains it, the more do consciousness and will become differentiated.

To a higher order of life and intelligence belongs a faculty, which is the condition of still more elevated phenomena—the reaction of all external and internal motions in a central organ, which receives and transmits vibrations. Intelligence is in proportion to the concentration of the organic apparatus. Such is the law, so comprehensive and yet so precise that it is applicable to all the innumerable and imperceptible transitions leading from motion up to reason.

Here is a worm, both blind and deaf, but no longer belonging to the lowest stages of animal life: it has one sense, that of touch, which, transmitting a confused impression to any given point of a sort of longitudinal tube, to some small extent guides its crawling movement. How vague and poor is its memory! How ill-defined its individuality! Here again is a grub, with as many pairs of feet and eyes, as many sensory centres, as it has rings. A nervous fibre no doubt connects and brings into mutual relation all the individualities composing it, and which concur in the general motion, in the absorption and rejection of the alimentary substances; all have but one mouth and one head in common. But how weakly connected are these various parts lying in juxtaposition! How attenuated becomes the concentration of memory and consciousness by the sensibility proper to each ring! Nevertheless, here we detect the first scale of conscious existence. Personality, with its main attributes, is displayed in the higher ranks of the insect world. The spider, the bee, the termite, and especially the true ant, give unequivocal proofs of memory, reflection, and judgment. Their works, their towns, their social organisation, are entirely comparable to human industries and institutions. Doubtless their

activity still obeys the obscure impulses summed up in the word "reason," and which in any case are not absent from any order of life. But who can deny the faculties of reason and will to the ant and bee? The intellectual power of these insects seems at first sight even incompatible with their average position in the living series. It scarcely yields to the endowments of birds and mammals. A poet might say that in the insect nature has traced a complete sketch of the mental evolution, and that, to perfect the picture, she recommenced it on a fresh plan. She had operated only on a minute scale; hence was obliged to resume her work *ab ovo* on a larger plan. She retraced her steps, and, amongst the many essays that encumbered her atelier, her eyes falling upon the notochord of the lowly gastrula, she took it as her model. She ramified this fibre in the amphioxus (lancelet), drew it out, inflated it with cells, perfected it with an arterial bulb on which all the centralised impressions impinge, and where are generated by reaction all the impulses transmitted in return to the whole system. She clothed it with an integument at first cartilaginous, then osseous, ingeniously articulated, further expanding it to a cranium at the summit of its axis. And thus were developed the fish, the amphibia, the reptile, the bird, the monotremata and mammals, that ramification of the vertebrates which is terminated and crowned by the human brain. But side by side with her masterpiece and supreme effort there remains the insect as a point of comparison, the insect a specimen of her first style, a monument of her genius.

Beneath the harmless anthropomorphism of language there is concealed a great zoological truth. At several points of the great series leading from the cytode to man, there are outlined collateral and divergent branches, whose special development attains a relative perfection.

Sensibility culminates in intelligence. But before its messages are transmitted to the cerebral laboratory, it announces them by two warnings, at once general and summary, which exercise the most decided influence on the vibrations returned from the centre to the periphery. What tone is to the musical note, pleasure and pain are to the received impression. They are inseparable from it.

Wherever a community is constituted, whether it be a hive or a nation, the sentiment of pleasure and pain, of individual good and evil, becomes enlarged and generalised by comparison, by reciprocity, by the clash and harmony of interests brought into juxtaposition. Each member of the community learns to rejoice and to suffer with the rest, to do for them what he would do for himself—to secure for them their share of the enjoyment even to his own disadvantage. Thus are established written or implied laws, which determine the minimum of the guarantees due by each to the common, by all to the individual security. Interest is born of right; right begets duty.

Is not this in a few words the whole process of the moral life? It has been evolved only amongst the superior insects and the highest order of mammals; it is developed only in human societies, where its evolution is, however, still far from being completed. But who can fail to see that it proceeds altogether from the two primordial characters of sensation, pain and pleasure? Who fails to observe it rising from the individual to the general egoism—to the egoism of the family, tribe, community, nation, and lastly, to human solidarity? The stages are numerous enough; but the route, starting from the origins of life, from the first germs of the animal organism, is also long enough to embrace them all.

There are those who cannot bring themselves to share with the ant and the elephant the common privilege of intelligence and the moral sense. The least infatuated concede thought, judgment, reason, but they reserve (as if sensation were susceptible of being dissected) the pretended sense of good and evil, and to this they cling with a desperation assuredly worthy of a smile. Do they suppose that anyone means to compare, for instance, canine sagacity with the genius of Democritus, Voltaire, or Laplace?—the order, such as it is, of an anthill or beehive with the endless intricacy of the sentiments suggested to man by the social relations? Their reluctance is explained by an illusion doubtless very natural in itself. The faculty of articulate speech, by fixing the memory, by shortening the work of reason, has carried man so far ahead of the animate masses that he has lost sight of his late companions on the

route, that he has utterly forgotten and ignored the common ties that associate him with the whole series of beings. He has fancied, in perfect good faith, that a special creation, a metaphysical origin, would still more enhance his pre-eminence. And when science came to show the cohesion and unity of the universe, whether organic or inorganic; when she reduced all forms, and all their properties, to diverse combinations of irreducible elements, an idle pride—idle because in no way affecting the realities—would attempt at all cost to isolate man from nature, and withdraw at least some few of the cerebral vibrations from the evolution that has determined them.

M. de Quatrefages still holds by the "human kingdom," which he introduced some thirty years ago. In a relative sense the expression has its *raison d'être*; but we are here dealing with an absolute category, above all genus, class, or division of any sort. From this point of view the exaggeration is obvious. To maintain such an entity seems no easy matter, and is even more embarrassing to its originator than he himself supposes. Does he not teach us that in the eyes of the naturalist man is purely and simply a mammal? To that obscure *ἐντελέχεια* which he calls *animal soul* does he not concede sensibility, will, intelligence, and reason? What then does he reserve for the *human soul*, for the human kingdom?

"(1) Man has the notion of moral good and evil, *independently of all physical wellbeing and suffering*; (2) Man believes in superior beings capable of influencing his destinies; (3) Man believes in the persistence of his existence after this life."

The first proposition is superficial and unintelligible, the other two are hazardous; for man *either believes or does not believe* in gods and his own immortality, and in one, just as much as in the other case, we see nothing in this affirmative or negative opinion at all differing from any ordinary judgment or induction; nothing that does not flow from the intellectual faculties conceded to the entire animal kingdom.

In any case these three illusory or subordinate characteristics in no way justify the creation of a "human kingdom." The faculty

of formulating and combining general ideas, which is the true distinctive feature of human thought—but which M. de Quatrefages does not mention—might be more plausibly appealed to. At the same time, even this is but the development of a faculty which other animals do not lack; nor is this development itself equal amongst all races and individuals. Lastly, we know its indispensable condition, its starting-point, which is no other than language—articulate speech. The *consonant* is the true *labarum*, the line of demarcation between man and animals; but even this is already heard in a confused way in the utterances of the ox, the horse, the ape.

Philosophy has no more right than has natural history itself to separate man from the organic series. The scale of beings is one, admitting only of differences of degree; man must needs be satisfied to take the first place, incontestably conceded to him. To this position he is committed, and through it to the rest of the material world; he cannot resign it except at the risk of falling into the void of metaphysical vagaries.

§ 2.—*Man.*

Man, one of the genera in the order of primates, is the near relation—something like a cousin—of the large apes, the gorilla, chimpanzees, orang-utan, gibbon, that have received the name of *anthropoid*, or *anthropomorphous*. The soundest inductions of science now fully confirm the implicit belief of the peoples of Africa and the Indian Archipelago. The Bantu negro regards the chimpanzee as a *m'pongo*, as a man, but speechless; *orang* also means man in Malay. Rama, on his march to the conquest of Ceylon, finds no more valiant allies than the epic apes of Hanuman. In point of fact, between the gorilla and the lowest types of humanity—Bushman, Australian, &c.—nature has placed less distance than between the anthropoids and lower monkeys.

Man did not suddenly appear on the scene in the form that has resulted from a thousand centuries of intellectual labour. History alone would suffice to refute the fictions regarding the Golden Age.

whose ruin has been completed by the discoveries of archaeology. The bowels of the earth have preserved the traces of our long upward struggles, the remains of our first humble industries. Of the Biblical Adam there can be no further question. Our ancestor is no longer that namer of the creatures of the earth, who awakens to life in order to pass his subjects in review and take possession of his domain. His arrival was effected in a much more toilsome manner. But he did not fall from a state of bliss he had not attained to, and towards which the strongest and most skilful of his posterity will tend indefinitely.

At an epoch still undetermined, but dating back to a prodigiously remote time, and in one or more regions of a world whose surface has undergone more than one change since then, a mammal was born at his destined time, in his place in the series of beings, a biped and two-handed like the other simia, hairy, a climber, with nimble legs and fingers, striking down his prey with a broken branch or the first stone to hand. This *dryopithecus*, as M. Gaudry calls him, brought to the struggle for existence a better-balanced frame, more varied appetites, a less obtuse brain. Taught by necessity, he learns to seek out places of refuge, to form lairs, to superior strength opposing numbers or skill. Selection does all the rest. Habit and inheritance fix the acquired faculties, securing at once both present and future conquests. It is by transforming himself, and because he becomes transformed, that he survives the revolutions in which so many of his congeners and rivals are destined to perish. Speech completes the metamorphosis, and man is at last separated from the animal state.

These toilsome yet glorious beginnings are a great stumbling-block to the "vases of selection" who insist upon having been fashioned of clay, kneaded into shape by a divine potter. "It depends on yourself to be a vase," said Voltaire to them. Nor can we lose time in consoling them; we lack even the space to mention in detail the conjectures of Darwin, Haeckel, C. Vogt, Topinard, Abel Hovelacque, as to the origin, the structure, and habits of the precursor of man, or the reserve always prudent often exaggerated of M. de Quatrefages. We are also obliged to refer

the reader to special works on some questions which, though interesting in themselves, are but of secondary importance from our point of view. Was the human species one or diverse? The reply is included in the meaning that may be assigned to the term *species*. Does man descend from one single couple or from several groups?—monogenism or polygenism? As far as one can venture to pronounce on what, in the absence of witnesses, will never be known, the second hypothesis is by far the most probable. For why should not the precursors of man be developed wherever the surroundings were suited to their existence? Is not the human race found at present diffused throughout the world? And how can the undeniable fact of migrations, whether historical or pre-historical, contradict the theory of autochthonous peoples and of many centres of independent appearance?

The question of the antiquity of the species must detain us somewhat longer. As the reader is aware, the six thousand years of Genesis have gone the way of the six days of creation and of the spirit that "moved upon the face of the waters." At the very time when the Semite Elohim were engaged in dividing heaven and earth, a genuine civilisation was flourishing in the valley of the Nile; they had doubtless been outstripped by other deities. And after all, a book written in the tenth century and emendated in the seventh, may well have erred by some few hundreds of years. But a new and contemporary science comes meantime to render superfluous the reconciliations and corrections so dear to pious souls. By exposing to view the fossil bones and other traces of man, preserved throughout all the periods not only of the quaternary age, but even of still more ancient epochs, it has broken through the limits of chronology, the narrow circle of the times, just as the telescope pierced through the vault of the firmament. The conclusion that it adds to history cannot be expressed in figures, and it will suffice to remember that most geologists calculate at one hundred thousand years the period which has followed the glacial epoch, and that of all the terrestrial ages the quaternary is the shortest. Prehistoric archæology—which Cuvier might have founded, for he had fossil man under his eyes and in his hands—was ushered in by the

discovery of the *shell-heaps* (*Kjökkenmødder*, or "kitchen-mounds") on the coast of Denmark, in 1847. Almost immediately afterwards the researches of the three Danish savants, Steenstrup, Forschhammer, and Worsaae, supplied a brilliant confirmation of the grand views of Lucretius on the succession of the Stone, Bronze, and Iron Ages. Lastly, during the past thirty years, the successive or simultaneous labours of Boucher de Perthes, Dart, Christy, Bourgeois, Desnoyers, Broca, De Mortillet, Hamy, Gaudry, Capellini, and a hundred others, have overcome all doubts, and clearly established the progressive development of the human organism and industries from the miocene epoch of the tertiary age. M. de Quatrefages goes still farther, and is tempted to refer the origin of man to the secondary age. "There is nothing impossible," he says, "in the supposition that he may have appeared on the globe with the *first* representatives of the type to which he belongs in virtue of his organism." But no facts can be appealed to in support of such a hypothesis, which is otherwise scarcely in harmony with the constant order of evolution. The origin of man is bound up with that of the higher mammals, and he can have made his appearance on the earth only in company with the *last* types of his class. But a million of years more or less can matter little.

Of man previous to the quaternary times, there remain nothing but some flints rudely sharpened to arrow-heads and scrapers, besides some traces of marks and incisions on the bones of the bison, the mammoth, the rhinoceros, elephant, deer, and a fibula found in England. But even these evidences are still open to some doubt. It may be mentioned, in passing, that they have been collected in Europe, that is, in the West, hence are scarcely favourable to the opinion which refers the *only* cradle of the human race to Central Asia. Doubtless Asia remains still to be explored; but the documents it may supply will add no weight to the monogenist theory. But however this be, there existed from miocene times beings who were able to make use of flint, and who could scrape the hides of slain beasts in order to make themselves coverings of them.

Industry consists in utilising resources external to the organism.

Such is its starting-point, and some animals had gone so far even before man. The bee, for instance, that cements its cell, the bird that builds or weaves its nest, the beaver that constructs dams, the gorilla that breaks off a branch to lean on or strike with, are cases in point. And even the coral, the mother-of-pearl, the sponge, the shell, and the carapace, or dorsal shield of the chelonian reptiles, might be regarded as products of a rudimentary industry. Hence weapons, clothes, dwellings, are no human privileges. The only instrument that separates man from the animal kingdom, the only source of his greatness, the true mark of his intellectual superiority, is fire. The conquest and preservation of this powerful ally implies a reflection, a foresight, quite beyond the mere animal intelligence. Many animals like and seek the fire; none have known how to kindle or nourish it. But according to M. de Quatrefages, our miocene ancestor, of whom traces were discovered at Beauce, "had already a knowledge of fire." What service did he derive from it? He doubtless used it to cook some of his food, but his ingenuity scarcely went so far as to apply it to the baking of the potter's clay or to the casting of metals. He had not yet realised the idea of a simple earthenware porringer.

Nor is it probable that he had yet reached the intellectual and moral level of the lowest savage, though, with all due reserve, the natives of Australia may on the whole represent accurately enough the tertiary man. They also are acquainted with fire; but their amazement was extreme the first time they saw water boiling. They possess a few stone and wooden weapons, and they hurl the boomerang. But the bow, the harpoon, the net, are beyond their inventive powers. Stretched along the shore they watch for the fish and seize it with their hand, as do the Fuegians. When pressed by hunger they sacrifice some female member of the tribe, and they are strangers alike to friendship and love. The family has not yet been developed from the promiscuous state, the necessity of the moment is their guide, force their only law. Will M. de Quatrefages concede to the Australian or to the tertiary man "the notion of moral good and evil independently of all physical wellbeing and suffering?"

But when we reach the quaternary man, our information is much fuller, our data "more numerous, more precise than on many actual races!" Such are the caves, burial-places, bones, nearly forty almost perfect heads, entire skeletons, the *man of Mentone*, in the museum. We have become familiar with those rude contemporaries of the glacial lowlands, the nomad hunters of Saint Acheul, Canstadt, Neanderthal, La Naulette, Eguisheim, Gourdan, Clichy. In an island Europe invaded by the polar icebergs, under tremendous downpours, in a watery and agitated region, cut up by a network of mighty streams, they roamed about without fixed abodes or burial-places, shunning, contending with, and devouring in turn the huge mammoth, the rhinoceros tichorhinus, the great Irish elk, the cave-bear, hyena, and tiger. They were rudely-shaped bipeds, with projecting muzzle, round eyes buried in prominent orbits, retreating chin, elongated and surbased skull, and singularly savage aspect. They wielded huge axes, roughly sharpened, on both sides or on one alone, hammers, darts, and strong-headed spears. The great carnivora, the true rulers of this age, caused them to lead an adventurous and troubled existence, ending often in a fearful death; for the warfare between them was incessant and deadly. Humanity revealed itself only in a certain taste for ornament, as shown by certain minute shells pierced and scattered amongst their remains. Thanks to the less individual variability of the inferior races, the Canstadt type has been recognised not only in the basins of the Seine and Rhine, but also in the Pyrenees, Gibraltar, Central Italy, and Bohemia. Nor has this race died out; it has persisted in the whole world, in America, and Australia, in the Gallo-Roman tombs, and in the mediæval burial-places. Atavism, checked however by education, still revives it amongst ourselves. Some of the lower savages, arrested in their development, have preserved its traits, its instruments, and probably its habits.

Progress is perceptible in the lower middle strata, amongst the men of Vézère, with whom has been associated the name of Lartet, founder of human palæontology. This race, perhaps of African origin, and which MM. de Quatrefages and Hamy again meet more

or less densely diffused throughout the Canaries, amongst the Kabyles, in the Basque country, in the valleys of the Seine and Marne, in Belgium, in Germany, and as far north as Dalecarlia, had its chief centre in Perigord. It lived through the ages of the mammoth and the great bear (*ursus spelæus*), of the horse, and reindeer, and survived in La Vézère, while the land was being reduced twenty-seven mètres below the level of its first retreats. This depth has not been materially increased since the neolithic epoch, from which some idea may be formed of the duration of a period which was brought to a close several thousand years before recorded time.

Leaving the man of Moustier, closely related to the Canstadt type, who still struggles with the cave-lion and hyena, now becoming rare, and despising fishing and the pursuit of winged game, feeding on the aurochs, the horse, and reindeer, we shall meet at the station of Cro-Magnon five specimens of a magnificent race, with still savage and prognathous features, but broad at the temples, and terminating with a triangular and prominent chin, with an aquiline nose, cranium still dolichocephalous, but highly developed, of athletic stature, doubtless of fierce disposition, to judge from the femoral bone of an old man and a female head, both bearing traces of a wound or a blow, but at the same time remarkably industrious. This race does not fish, but pursues the bird, brings the cutting of celts to perfection, and prefers the dart to the pointed head of Moustier. The mammoth, the lion, the bear leave him some respite to vary his food, which now includes the horse, the reindeer, the aurochs, wild-bear, elk, wild-goat, wolf, fox, and hare. The tibia, the arm, the jaw still connect him with the simiæ, but his brain-capacity is already human. If certain bones, pierced with holes, may be regarded as emblems of authority, he already recognises chiefs—a sort of social hierarchy.

The spear found at Solutré, slender and well cut, is the weapon of a race who have need to aim truly rather than strike hard. The great carnivora have now, in fact, disappeared, and the horse becomes the staple of food. The number of horses from four to eight years old, whose remains have been accumulated round about

Solutré, has been estimated at forty thousand. At Langerie-Haute begins the age of the reindeer; its bones and the forest supply the materials for arrows, bodkins, fine needles pierced with an eye; the bow has already been invented, and a special site is chosen for the manufacture of arms and utensils.

A less precarious existence at last affords the leisure needed for the creation of art. Seated at the mouths of their caves, the hunters of Langerie-Basse, Eyzies, La Madeleine begin to barb their arrows and harpoons; to carve reindeers and the human figure on the handles of their daggers; to engrave simply but correctly the mammoth with its shaggy coat, hunting and fishing scenes, on stone, bone, and ivory surfaces. These objects, which are daily increasing in number, give proof of a genuine artistic skill, and of a considerable advance beyond the men of the polished stones and dolmens.

The love of ornament is developed; the red-lead is pounded in the mortar for tatooing; shell necklaces are strung together with ivory plates; skin garments are sewn with sinew; fossil or marine shells are purchased or bartered.

The troglodytes of La Vézère are no longer nomads. When they quit their caves they close the entrance with palisades. At the hunt, which they still pursue naked, they raise warning notes with whistles; they return with abundance of supplies, they cut up the game, rejecting the now despised feet, and while the flesh is broiled on the embers they skilfully split the marrow-bones. But there is still no trace of vegetable food.

Nourishment is doubtless still the chief, though no longer the sole mainspring of action. Man speaks, and he dreams more than he thinks. Fear and desire suggest the belief in a second life, and in beneficent or baneful powers. The dead are buried with their weapons, provisions, slaves. The teeth of the woolly reindeer, ox, or horse are converted into charms and talismans for the chase. Metaphysics and religion now make their appearance, hence they are not primordial characteristics of the "human kingdom."

Towards the close of the age of the reindeer, the north and centre of Gaul seem to be occupied by races of short stature, with

moderate or broad cranium (mesaticephalous, sub-brachycephalous), low forehead or suddenly receding, elongated and prognathous head, nose trumpet-shaped, altogether inferior to the warriors of Cro-Magnon and the artists of La Madeleine. These peaceful, and perhaps oppressed races, are by M. de Quatrefages regarded as akin to the Lapps. Their remains, and their long sharpened knives, have been discovered at Furfooz, Grenelle, La Truchère, mingled with the *débris* of the chamois, wild-goat, saïga, antelope, Norwegian rat, and lagopus. The mammoth has withdrawn to Siberia, while the reindeer begins to retreat northwards. Some rude earthenware, found at Furfooz, introduces the modern epoch.

Has the Polished succeeded the Chipped Stone Age by an imperceptible transition, or was it due to an invasion of brachycephalous Kelts? But whether the deterioration produced in the populations of La Vézère was the result of violent crossings, or of a general retreat northwards in the wake of the reindeer, is of little moment to us.

Meantime the bed of the ocean has been upheaved, Europe is now fully formed, her flora and fauna are fixed. With the taming of the dog begins the pastoral life. We enter on those polished stone and bronze epochs which succeed each other at irregular intervals, which even overlap one another in the midst of ethnical migrations and fusions, at once more confused and of shorter duration than less advanced and more rudimentary ages. The primitive European populations are interrupted in their special evolution, and without perishing become absorbed in other races, engulfed, as it were, by the successive waves of migration overflowing from Africa, possibly from a lost Atlantis, and from prolific Asia. On the one hand come the Iberians, on the other Pelasgians, Ligurians, Sicanians, Etruscans—all forerunners of the great Aryan invasion. The East, more matured than the West, witnesses the rise of empires in Egypt, in China, and Mesopotamia, the development of civilisations in an era when the chase still prevailed in Europe, when the "os sublime" of the artists of La Madeleine had not yet turned its eyes even once heavenwards. The East has already scanned the firmament, deified sun, moon, and earth, raised palaces

and temples, cast metals, created real communities. In the intervals during which the peoples are settling down, tribes still more highly endowed have suddenly multiplied, their precocious expansion and the now too confined limits of their original settlements urging them more or less rapidly to the conquest of the world. With bronze and iron they endow it with languages capable of expressing general ideas, together with veritable family, social, and religious institutions.

So long as ethnology has to deal with simple characteristics, such as the dolichocephalous types of Canstatt and Cro-Magnon, the brachycephalous of Furfooz, or habits and industries as rudimentary as those of the first inhabitants of Gaul, it is enabled, if not to discover their origin, at least to determine the groups with sufficient accuracy. But according as crossings become more intricate, when layer succeeds layer, when to the variety, itself ever-shifting, of races and sub-races, outward circumstances and education superadd individual peculiarities, ethnology is fain to fall back upon means of research as difficult of justification as of due estimation. The proofs that it draws from anatomy, language, statistics of all sorts, do not always harmonise, nor is it possible to refer them to some fixed and determined point of comparison. The form and capacity of the skull, the structure and weight of the brain, the irregular development of its various sections, the facial angle, the curvature of the vertebral column, the arrangement of the nervous, veinous, arterial systems, the proportions of organs and members, attitude and figure, complexion, features, cut and colour of the hair, besides many other physical characteristics, none of which can be neglected, are very far from corresponding with any accuracy to any given theory. The intellectual and moral traits resulting from the sum-total of such physical characters naturally present still more numerous and glaring anomalies. To these sources of uncertainty add the manifold, continuous, and complicated influences of climate, altitude, geographical area, food, peaceful or violent contact, habits and revolutions of every description; lastly, all those successive or simultaneous necessities summed up in the word *surroundings*, and some faint idea may be formed

of the chaotic field which the ethnologist and anthropologist undertake to explore.

One group, belonging to the higher races, is found in a state of savagery, or, perhaps, of hopeless decadence. Another, which has attained to a considerable degree of culture and wealth, continues to employ, without appreciable advantage, a language and a writing system belonging to the lowest stage of civilisation, and long abandoned by kindred peoples. Others again, though favoured from prehistoric times with inflecting forms of speech and phonographic characters, have remained or relapsed into barbarism. In the midst of the rudest tribes, without a thought beyond their immediate wants, we shall come upon a harmless or poetic people, remarkable for the wisdom of their institutions and their lofty moral conceptions. Everywhere laws established with much laborious research are found to be overthrown or falsified by exceptions.

The individual seems to laugh at all statistical results. In him are combined the most contradictory traits, concentrated from all the corners of the earth by crossings, and capriciously selected, rejected, and again revived by atavism. From this fusion springs a new being, *sui generis*, classed respectively in a hundred different, at times extreme, categories, by the shape of his head, his features, arms, tibia, prevailing tastes, mental qualities. Now a cultured, and even superior intellect, is developed beneath a flattened or pointed cranium; now the highest cerebral development ends in lunacy; here a New Caledonian vies in magnanimity with the noblest of civilised whites; elsewhere a prognathous negro reads a lesson in statecraft to European politicians; or else it is some "rain charmer," half-priest, half-conjurer, who conceives a Manitoe, a Taaroa, equal if not superior to Brahma, to Zeus, Jehova, the Christian Triune Deity, or the divine unity of metaphysicians.

Doubtless the opponents of the science fancy they discover many arguments in these pretended freaks of nature or of providence. But this would matter little, did not such arguments impose even upon savants thoroughly convinced of their own superiority to prejudice, and whose scientific disinterestedness can scarcely be

called in question. If, some argue, the craniometrical results are not the exact measure of the intellect, we must needs fall back upon that *vital force seated in the brain*, &c. &c., which is simply meaningless, a force being merely a general term summarizing a series of phenomena. Since the same intellectual faculties, urge others, are, strictly speaking, pretty well diffused throughout all races, the monogenist conclusion must be adopted by all logical minds. Lastly, morality and the religious sentiment, which are displayed in various degrees under all latitudes and in all societies, are surely special and fundamental attributes of mankind, and thus the "human kingdom" is saved.

But let us see whether anthropology is quite so confused as some, and those not the least distinguished of its votaries, would have us believe; whether, from the already numerous documents it has brought together from all quarters, there may not be deduced some few indisputable general facts, which may serve as its starting-point. First of all, when the weight of the brain falls below a minimum of nine hundred grams, "the intellectual faculties disappear," even in the case of a Bushman or an Australian. In the second place, the cranial capacity increases with the general mental activity. Thirdly, "in the savage races, the number and intricacy of the cerebral convolutions are less than in the more intelligent and cultured races." How meaningless, therefore, is the angry exclamation of Gratjelet: "No enlightened man could ever think of measuring the intellect by measuring the encephalon!"

We have quoted these three anatomical and physiological laws, because in the matter with which we are concerned they are decisive. They do not allow of our doubting that the brain is the indispensable condition of intelligence; nay more, they establish the identity of the cerebral activity and the mind. The first, respecting the minimum weight, admits of no exceptions, while the others are not weakened by a few apparent deviations, mainly in the individual.

The time is drawing near when there will remain nothing but three great human types, the white, the yellow, and African negro, with their crossings. The dwarfed inhabitants of the glacial zone

—Eskimos, Lapps, Samoyedes—may possibly continue to vegetate on the arctic shores, fatal to the natives of the temperate and torrid regions. But the Red Skin is already disappearing, bequeathing some few of his characteristics to the people of Canada, of Mexico, and South America. The Papuan, the Australian, and Polynesian will soon have left no other traces beyond perhaps the imperceptible vestiges of ancient crossings effected in the Chipped Stone Age. They are perishing, so to say, at the breath of civilisation. M. de Quatrefages is justly, though too complacently, eloquent on the subject of the vices and maladies disseminated throughout Oceania by European contact, on the exterminating barbarism and ferocious treachery of the Christian conquerors. His thrilling advocacy, however, cannot save the remnants of the old human faunas. It happens to the races that have lagged behind, as to the fossil species—they perish simply because they are unable to survive. Doubtless the change of outward circumstances has told hard against them; but the true cause of their extinction, is the hopeless disproportion between the conflicting races. Nothing can save those that have run their course. It would be necessary to extend their destined cycle, or come out of it altogether, in order to arrest the fatal spread of more vigorous races. After all, the law of nature is the law of history. The peoples that have been relatively most spared, those who have defended themselves most valiantly, Hawaiians or Maoris, have been no less decimated than the tribes massacred or tainted by European intrusion. It would have been useless to place them under a glass-case, in order to render more gradual their transition to a new atmosphere. They would have died all the same, merely by being looked at! For they were assuredly no more capable of progress than were the men of Solutré or the Eyzies. Some few of their hordes passing through the hunting, fishing, and pastoral stages, had entered on a sedentary life. In other surroundings, with other wants, their capacities might have increased, their institutions expanded. But of what avail hypothetical conditions of a purely retrospective character? In point of fact, these races, as effete as the others, and who, left to themselves, had failed to produce either a literature,

arts, or the beginnings of a civilisation, had either exhausted their strength, or allowed it to become atrophied. Their protracted childhood condemned them to a sudden decadence.

There is a general coincidence between ethnical superiority and mental and moral development; or, rather, the one is at once the result and the condition of the other. The exceptions drawn from linguistic comparisons disappear when not isolated from their causes and consequences. M. de Quatrefages very properly remarks that the majority of inferior races speak agglutinating tongues, which places them one stage in advance of a whole civilised group in the extreme south-east of Asia. For China has remained at the monosyllabic state. But it was precisely the precocity of its civilisation that retained her there. The Chinese language being once for all fixed by writing, there was nothing left but to make the most of monosyllabism. But all the ingenuity of the race was unable to make good the imperfection of such an instrument, or to triumph over it. Hence that remarkable disagreement between their practical and theoretical development. All that experience could discover was discovered by the Chinese and consigned to their encyclopædias. But they were unable to attain to science which fertilises discoveries. Hence the Celestial Empire was stricken with intellectual stagnation some three thousand years ago.

It was stated higher up that M. de Quatrefages assigns to the "human kingdom" two special attributes, morality and the religious sentiment. We have shown that these two general or accidental manifestations of life proceed from intelligence. Hence either intelligence should have been denied to the "animal soul," or else the germ of all human faculties should have been traced to this source. We give this fiction of a "human kingdom" for what it is worth; the line of demarcation must be sought elsewhere. But there are two questions perfectly independent both of each other and of monogenism, or *species*, questions which ethnology may solve. (1) Are moral notions a universal character? (2) Is the religious sentiment universal; is it a mark of superiority in the race or the individual?

We shall deal with them briefly, availing ourselves of the very

facts which the learned professor has failed to interpret with his usual sagacity. His standpoint is at once superficial and erroneous. He admits without inquiry an entity, an unknown cause, morality, a single category, which manifests itself through certain effects; and he fancies he is still loyal to the scientific method while neglecting to analyse moral ideas and acts in their origin, conditions, scope, and results. He finds that in many savage tribes there exist severe laws against murder, theft, and adultery; that—though disguised under strange customs and actions—respect for old age, filial affection, friendship, love itself and decorum are equally recognised and practised by the Bushmen, the Tasmanian, the Andaman, or Fiji islander (which is going rather far); that in their relations with the conquerors from the West the Polynesians have given proofs of magnanimity, of courage, and an innate sense of justice, throwing all the stronger light on the perfidy, wickedness, and infamy of the civilised whites. And he concludes that morality is *universal*, which tells us nothing, and everywhere *identical*, which is not the case.

The term *moral* has three senses. As synonymous with *ethics*, it is the science that formulates the laws of social morals, laws furnished by experience. It is, further, the faithful observance of the laws formulated by the science; and, lastly, the aggregate of the social relations. It is universal only in this last sense, which means no more than that there is no country, no tribe, in which men are not in relation with their fellows. The same is true of animals of like species or habitat; dogs, wolves, horses of the steppe or the stable; tigers have all an equally universal moral relation, since all have common or opposed habits and interests, contacts and rivalries.

In order to establish the progression of the moral ideas, it is not enough to recall at haphazard certain traits of honesty or courage which, proceeding from the most generous motives, are found at all stages of the evolution. We must start from the beginning, from the brutal egoism in which most of the lowest races still wallow. But this is precisely what M. de Quatrefages has enabled us to do.

The moral conception involves no mystery. It expands and

deepens with human intelligence. If it was early fixed in some of its rudimentary outlines, it is still very far from having arrived at its final perfection. We shall elsewhere point out its advances and shortcomings, whether partial in the order of the private relations, or general in the sphere of politics and economy. Here it concerns us only in its ethnical character.

The religions are deeply interested in identifying their cause with that of morality. The latter has certain and constant foundations, which no revolt can overthrow or shake; it results from the very nature of things. The former have their origin in ignorance and illusion alone; hence every progressive step of science restricts their empire and enlarges that of the moral laws, a truth so evident that we need not further insist upon it.

M. de Quatrefages, as usual, here introduces an unknown cause, which he may call "religiosity" if he pleases. He tells us, for instance, that the belief in ghosts, and the consequent hypothesis of another life, are manifestations, or effects, of this religious sentiment. But the very opposite is the case. Religiosity is an effect of those illusions, and of many others. Whatever its source, and allowing its universality (a questionable, though secondary, point), at least for the past starting from the quaternary times, is it a proof of the unity of the human *species*? Most animals tremble at the sound of thunder, flee from weapons of attack, dread the unknown; but does fear—a far more universal sentiment than religiosity—prove the unity of the animal *species*, or of the living *species*?

A much more serious question is raised and answered by some facts, from which M. de Quatrefages draws the true consequences, but against himself, and in our favour. Endeavouring, in the interest of his "human kingdom," to show that the religious sentiment is common to all men, without distinction of colour, of race, or culture, he quotes an Indian prayer addressed to the Great Manitou, and a Polynesian hymn to Taaroa, in which is revealed a conception of the Deity at least equal to the intuitions of the most refined theodicy. The Homeric Zeus, the Brahm of Manu, Plato's Demiourgos, Descartes' veracious God, must assuredly yield to the Polynesian Taaroa.

Thus on the one hand the quintessence of monotheism is considered as the supreme conquest of reason, while, on the other, this treasure, this "Holy Grail," shines forth in its brightest light on a disinherited land, amongst peoples arrested thousands of years ago in their evolution. Who shall explain this antinomy?—a primitive revelation, or its equivalent, the "unknown cause?" Ethnology has a ready answer: If the most vaunted religious conceptions are produced, so to say, spontaneously, amongst confessedly inferior races, it is because the progress of religiosity is not correlative with that of intellectual culture, as are those of art, of morality, and science. Far from being the ally of true progress, history shows that it has ever been its opponent and persecutor. Let us conclude, with Tylor, that the religious sentiment is an heirloom of the olden times, a *survival*, an infantile character, an obstinate feature of atavism, which ignorance is never wearied of reproducing, and science of effacing. The true mark of the superior races is the disappearance of religiosity.

CHAPTER III.

THE INTELLECTUAL MECHANISM IN THE INDIVIDUAL.

§ 1.—Sensation.

THE organism is man himself.

Before he was an "intelligence ministered to by organs," man was an organism determining an intelligence.

Intelligence is the result of organic phenomena, of which the first is the condition of the following—sensation, memory, abstraction, association, judgment, will—all proceeding from a property common to all living bodies, sensibility or consciousness.

In the same way, the body is the sum of countless vegetating cells, grouped in a thousand ways round about a mineral framework, just as sensibility is the sum of countless cellular motions accompanying or following the work of the organism, and thus

mitted to the encephalon by certain special fibres of the nervous system. When the number or intensity of these movements enables them to reach the middle and anterior regions of the brain, according to the temperament, age, sex, disposition of the moment, constitution, volume, health, exhaustion of the sensorial and central organs, they here determine more or less durable vibrations in a given time, whose duration may be calculated. In the cells they excite a rush of blood, an increase of temperature, indications of chemical combinations, and of an activity which we call intelligence.

All sensation has for its condition and starting-point a contact, whether in the centre of the organism between cells and groups of cells, or at the periphery between the organs of the senses and objects exterior to the organism. Hence the very fact of sensation involves at once the simultaneous existence of a sentient subject and of a medium perceived by it, in short, of man and the universe—two inseparably associated realities.

Of sensations there are two orders, those which arise within the organism, and those which come from without. But though of different order, their nature is the same. In respect of the brain receiving them they are both equally external, being caused, the one by the impact, the others by the absorption of external matter, while all are conditioned by the friction of cells or cellular groups respectively exterior one to the other.

The organic sensations developed within the system in a caloric medium usually uniform, and moreover deadened by a habit dating back to the intrafetal life, manifest themselves in the form of pleasure and pain only—a pleasure most frequently restricted to simple wellbeing, a pain which may pass from a dull aching to the most acute suffering. But thanks to the relative independence of the nervous channel, the great "sympathetic nerve," which collects and transmits them, the brain never confuses them with the impressions of the senses. At the same time the sovereignty that is incessantly going on between the organic sensations and those from without, contributes powerfully to evolve and strengthen the sentiment of individual continuity which we call personality.

The ego finds itself placed irresistibly in presence of the outward world, like a whole endowed with movements and energies peculiar to itself. It becomes all the more readily isolated from the universal totality of which it makes an integral part, in virtue of which it exists, and with which it remains in constant communication, inasmuch as in the very organ itself that summarises and concentrates it, its intimate unity is opposed to the diversity of outward things.

Hence the importance of the ^{*}confused sensations due to respiration, nutrition, circulation, secretion and excretion is by no means inconsiderable. They alternately strengthen, weaken, falsify, or neutralise the external sensations, and consequently control the memory, the reason, and intellect. They exercise a preponderating influence on the wants and instincts, on the cravings and volitions, on the emotional sentiments and passions, on the conduct of individuals and on the whole social order. Whether forgotten or perceived, exacting or working in silence, slow or sudden, everywhere present and potent, we shall meet them at the bottom of all the moral and mental phenomena. But their neutral and simple nature does not call for a long description. Most of them differ from the sensations of touch only in their lack of precision; some verge on the sensations of smell and taste by certain loathings, bitter or acrid qualms, on that of hearing by certain ringing or sonorous impressions, whether it be that they meet the nerves peculiar to those senses, or that they become sufficiently liberated to reach the very organ of the sense so affected. Others again consist in optical derangements, fitful gleamings, dizziness, and the like. All such sensations, however, become deadened in the perfectly healthy state; to render them vivid there is needed a disturbance of the equilibrium in the local or general economy. Their origin, persistence, and variation chiefly concern the physician, who studies them as so many pathological symptoms.

The external sensations belong, like the others, to physiology. But they come also, and primarily, within the scope of philosophy. For, as messages from the outward world, echoes of the universe,

are they not the first elements of knowledge, of that twofold conception of men and things which is the proper object of philosophy?

They may be defined: molecular movements transmitted by the central axis of the sensor-nerves to the nervous centres concentrated in the encephalon.

In the normal state these vibrations start from the external organ where ends the extremity of the sensor-nerve. But they may be artificially excited at any point of the nervous channel, producing the afferent sensation of the affected nerve, provided it be not isolated from the nervous centres. But it must not be supposed that the conducting nerve can therefore *spontaneously* produce the sensation without the concurrence of the outward world. Its spontaneity is always aroused, and consequently affords no countenance to the opinion of the English idealists and psychologists, who hold that the world is subjectively created within us by the action either of an unknown cause called the soul, or of the nervous system. Whether inward or outward, all sensation is objective.

In his excellent work on "The Intelligence," M. Taine seems often inclined to the erroneous theory of the spontaneous and independent activity of the nervous fibres.

"The direct condition of sensation," he says, "is the molecular action or motion of the nerve; outward occurrences, or those taking place within the living body are of little consequence, for they act only through the medium of this movement which they excite; of themselves *they do nothing* (an obvious contradiction, since they *excite*), and might be dispensed with." But how dispense with them? Sensation is evolved only through them; snap the thread that connects the brain with the periphery, and you abolish the sensation. Hence the *occurrence* counts for something; it is, in fact, no less necessary to the encephalon than the encephalon is to the nerve. "It would suffice," he continues, "that the action of the nerve were always spontaneous, as it is at times" (but it is never more than reflex), "if its action were still produced regularly, and with the usual intensity, the outward world and

everything in our body not forming part of the nervous system might be abolished; we would still have the same sensations, consequently the same images and the same ideas." The hypothesis is null, and has never been realised. It is to such illusions that all philosophic systems are "inevitably led which make psychology their starting-point. In point of fact, both in neuralgic complaints and in the experiments in which the communication is interrupted between the nerve and the organ at the periphery, the nerve acts under a pressure from without, it is powerless without the organism and the surrounding medium. Moreover, all the bodily functions are consolidated, so that no nerve can act without the co-operation of the blood itself, constantly produced by nutrition and respiration, involving the existence of the outward world and its objective reality. Analysis should never let us forget the *ensemble* that it has decomposed.

We know that there are five groups of sensations corresponding to the five senses—those of touch, smell, taste, sight, and hearing. The first, a general sense, diffused throughout the whole body, and more particularly on the surface of the skin, thanks to certain dermal papillæ where terminate the tactile fibres; the four others, called *special*, localised in the mucous membrane of the nose, in the degustatory papillæ of the palate and tongue, in the optic apparatus, and in the vestibule of the ear, where the rods of Corti somewhat resemble the keys of a piano. Sensation seems, at first sight, a simple, instantaneous fact; but the least investigation, and *à fortiori* scientific observation, enable us to recognise in it a complex group, a successive series, a compound capable of minute division.

In the first place, there are scarcely any sensations unaccompanied by others from which they must be liberated. In those of hearing, taste, smell, and even sight, the tactile element often plays a no inconsiderable part, as, for instance, when they become intensified to a degree of pain, or when mingled with impressions of cold, heat, pungency, violence. The ethereal waves of light and colour, the atmospheric waves of sound, really touch and affect the tactile parts of the eye and ear. Taste and smell, resulting from the

contact of liquid or humid substances volatilised, resolve themselves very often into the category of sensations of touch. In the second place, sensations are not instantaneous, but are transmitted along the nervous system at the rate of about thirty-one and a half yards per second. Lastly, they are made up of innumerable simultaneous or successive waves or vibrations.

The composite and successive nature of sensation has been placed in the clearest light, especially by acoustic and optical experiments. Without encroaching upon the special domain of physics, chemistry, and physiology, we may here briefly sum up the results of those sciences.

The auditory sensations are due to the atmospheric waves or pulsations of the air, excited by a vibrating body, and striking against the ear. These sound-waves, conjectured by Lucrotius, slower in the heavy, quicker and shorter in the sharp, have all a minimum of pitch and a maximum of intensity, followed by a corresponding waning. The sensation of noise answers to a series of undulations of unequal velocity and length; that of the musical note to a series equal in length and velocity; that of tone to harmonic sub-waves, accompanying the musical wave, which is itself already composed of at least two equal waves. Now, if we reflect that a thousand of these musical couplets are produced in a second (that is, two thousand simple waves, themselves composed, and which are not separately perceptible, though capable of being represented by graphic signs, the sight here supplementing the sense of hearing), it will be seen that the entire sensation, lasting one second, already involves a thousand elementary and perceptible sensations, besides thousands of unconscious impressions. As M. Taine remarks, "this gives us a glimpse of the obscure and infinite world that comes under our distinct sensations. But to render their elements perceptible to our consciousness, they require to be superadded one to another, so as to produce a certain volume, and occupy a certain space of time."

And when we pass to the region of vision, the complication is intensified by the almost immeasurable velocity of light, and by the three fundamental sensations of red, green, and violet, always

combined in greater or less proportions. It has been calculated that "at the red extremity of the spectrum, where the successive transmissions are slowest, there occur 451,000,000,000 per second," and the velocity increases to 789,000,000,000 at the violet end. The electric spark, though perceptible to our eyes, lasts no more than the one-millionth part of a second, so that a luminous sensation of one second's duration implies at least a million successive sensations; and these are themselves far from being rudimentary, for each of the 451,000,000,000 of red involves secondary green and violet waves, a sort of optical *timbre*, all with their two *minima* and their central *maximum* of pitch. Add to all this the differences of intensity transmitted by black, gray, or dark negative quantities, the combination of the complementary colours producing white (red and bluish green, orange and sky-blue, yellow and indigo, greenish yellow and violet), that of the extreme or nearly allied colours mutually strengthening each other, yellow and orange giving a deep yellow, light blue and indigo a dark blue, red and violet a purple. Thus we see how much more complex are the optical than the auditory sensations.

Those of smell and taste have been less studied, but the chemical combinations producing them imply "prodigiously minute and rapid" displacements, doubtless analogous to those that determine the acoustic and luminous waves.

"The four special senses," well remarks M. Taine, "are four special languages, each adapted to a different subject. Touch is, on the contrary, a general language adapted to all subjects, but feebly expressing the shades of each." It connects and regulates the other senses, and thanks to it, the real world is not for men that *hallucination* to which M. Taine himself is so partial. Without hearing, sight, taste, or smell, there would exist neither sound, colour, relish, nor odours; without touch nothing could exist. Hence, touch is the fundamental sense, whence flows all certitude both objective and subjective. It verifies the more general characters of things and their more immediate relations with the organism. It is this sense, also, whether inward or outward, that translates into pain or pleasure the varying intensities of the sensations.

Cases of partial paralysis and anatomical research have enabled us to distinguish in touch the muscular and dermal sensations, and trace to the encephalon the passage of the nervous conductors charged with the transmission of both. The dermal sensations cross each other in the spinal marrow, so that the impressions transmitted from one side of the body are reflected on the opposite side of the vertebral column and the brain. The muscular, according to Brown-Séquard, are transmitted directly to the higher regions without crossing over.

Before reaching the encephalon all sensation is latent, or, rather, there still exist the movements alone that are destined to produce it. Along the line of the spine, which may be described as a series of links, each the seat of a deadened consciousness, it excites purely mechanical or automatic motions, and does not become perceptible till it reaches the summit of the vertebral column, or, rather, the last vertebrae enlarged within the cranial cavity. The medulla oblongata, the connecting link between the spine and the brain, regulates more animal acts than do the inferior ganglia, but even this remits reflex acts only. The animal whose medulla oblongata has been severed from the brain proper, still contracts its face, swallows, utters vocal sounds, but ceases to experience pain, which is the most rudimentary symptom of sensation. Consciousness does not begin till we reach a circular protuberance connected by a bundle of nerves with the medulla. The animal that has lost the upper portions of the brain, but preserves this protuberance, feels pain, utters plaintive, prolonged, and conscious cries; he understands and expresses his anger or dread on hearing the voice of an enemy; he has the sense of taste and shows repugnance to bitter substances. The protuberance is therefore the sufficient condition of the tactile, auditory, and degustatory sensations. Vivisection and analogous experiments show that the optical sensations are associated with other parts of the encephalon, the *tubercular quadrigemina* and *bigemina*. When deprived of this organ, the rest of the encephalon and medulla remaining intact, the animal becomes blind.

The sense of smell has not yet been completely localised,

but there are good grounds for placing its seat between the medulla and the optic layers, and *corpora striata*.

The mental operations require as their indispensable condition the preservation and association of the sensations. This is the province of the higher cerebral regions, a function already anticipated by comparative anatomy.

"From the anterior angles of the circular protuberance there spring two large columns of white substance called peduncles, whose fibres end in large eminences called optical layers and *corpora striata*, whence are transmitted other fibres terminating in the cerebral lobes." The lobes or hemispheres, formed of a white substance, are covered with a circuitous cortical integument of alternato gray and white granular layers, composed of numerous vesicles bound together by filaments, and with the surface raised by more or less numerous anfractuositics called convolutions. The hemispheres constitute the mental apparatus. The movements and combinations here effected, by a regular afflux of blood, variable within certain limits that cannot be exceeded without risk of *anhæmia* or *hyperhæmia*, are still shrouded in mystery, though the results are evident.

It has been demonstrated by thousands of experiments, that in the animal series, including the human species, intelligence increases with the volume, weight, and cortical convolutions of the hemispheres. The premature suture of the anterior portions of the skull and the arrest of frontal development are a mark of ethnical and individual inferiority. Cerebral hemispheres below a certain volume and weight invariably belong to imbecile minds; an abnormally small brain and the atrophy of the hemispheres are always accompanied by idiocy; any lesion, whether slow or sudden of these lobes, and especially of the gray cortical layer, entails the loss either of memory or of reason, disturbances of speech, of the voluntary motions; in short, of all deliberate acts. The hemispheres supplement each other, but not without an effort, and, strictly speaking, man thinks with one hemisphere only, just as he breathes with one lung only—a statement confirmed by constant facts.

The white substance, both in the hemispheres and the nerves, is not so much sensitive as a conducting medium. The chief part is played by the vesicles and convolution of the gray substance, which already covers all the filaments of the nervous system. When the sensations reach it they communicate to this substance durable vibrations, which here accumulate, become co-ordinated and associated together, or else clash, interpenetrate, and replace each other, thus exciting others, indefinitely reacting on the system. The turgidity of the cerebral hemispheres under any given impression, as observed in the exposed brain of wounded or diseased subjects, and the increase of *urea* (a product of combustion), under the influence of mental exertion, place beyond doubt the physical reality of this operation, which is thought.

What is the nature of these transitions from sensation to understanding? Are we to conceive them as infinitesimal concussions, as quasi-photographic reductions reduced to order in the treasure-house of the vesicles, or as electric and magnetic phenomena incessantly propagated in the fibres and gray cells of the white nervous substance? But whatever their nature, they are produced here and here alone. Their *substratum* failing, they disappear.

Each sensation may be said to be interpreted in the cerebral hemispheres by a partial representation of the object by which it has been occasioned. When combined and applied to the same object, the sensations of touch, hearing, sight, &c., supply us with a complete representation of the object in question. We touch a fruit, we see it, we hear it fall, smell, taste it: from the touch we learn its temperature, consistence, weight; from the sense of hearing, the sound it makes on the ground, on a stone, or in the water; from that of sight, its colour and form; from that of smell, its scent; and its flavour from that of taste. If we slice or break it, its internal formation is revealed to us, its peel, its fibres, pulp, core, pips, the line connecting it with the stem are all displayed. The microscope coming to the aid of the eye discloses the form of the cells grouped within it; chemical analysis tells us of the simple elements composing it, and of their proportions. Who then will say that sensation is powerless to reach the substance of the fruit?

Hence the image or representation may be complete and leave nothing to desire.

These representations, which are neither types, nor categories, nor simulacra, hovering in the air, but simply cerebral modifications produced by external impressions, are within the capacity of all beings endowed with any nervous concentration whatever; they vary from one species of animal, and from one form to another, in number, precision, and duration alone. Their persistence constitutes memory; their juxtaposition, comparison; the sum of their various relations, judgment and reason; their association, imagination and thought; their intermittent and weakened return becomes mere reminiscence. Whether revived by the presence of constantly fresh images, or effaced by forgetfulness, they exist none the less. Some we see reappearing at intervals of one, ten, or forty years, under the influence of some sensation or of some other group of images analogous or contrary.

Some of these cerebral images are so vivid that they recall the original sensation to a degree of hallucination or illusion. In the normal waking state, apart from all morbid excitement or relaxation of the ties connecting them together, they simply recall the object of the sensation, the quality of the object of vision, hearing, or touch. They are no longer anything more than elements of information, a dictionary in which all natural details are arranged in the order of their origin, or in comparative categories. But it is an automatic dictionary, whose leaves turn of themselves, excited by that passive state of the periphery, and that cerebral activity kept going till exhausted in death by the extremely intricate mechanism of the organism.

Their union in a restricted region where all the cells are in permanent communication, not only with each other, but also with the whole nervous system, with all the muscular or visceral tissues, and through sensation with the outward world, results in the determination of the person, of what we call *I*, the sum of relations varied in their effects, constant in their nature and mechanism. We know that the pretended indivisibility of this *I*, transformed to an immaterial substance is the starting-point of all metaphysical

aberrations. But the habitual interruptions of sleep, the hallucinations of dreams* or disease prove superabundantly the emptiness of such chimeras.

§ 2.—*The Understanding.*

The understanding is the sum and series of the cerebral phenomena determined by the acquisition and persistence of ideans, by perception and memory. Ideas, as the word implies, are nothing more than images, and their combinations and results. There are no innate ideas, because to produce them there is needed the contact of an organism and an outward medium. These two factors have each their proper function, one elaborating the elements supplied by the other. Nothing is innate except hereditary and organic aptitudes to receive or reject, choose or discard, correctly combine ideas. These aptitudes, to which are mainly to be traced the groups of sensations we have called internal, are the very foundation of the individual sentiment, of the human person, that which distinguishes one man from another man, from another animal, just as the whole, the unity of the organism, distinguishes him from the surrounding medium. It follows that to the operations of the understanding there is added the consciousness of an individual activity, of an independence, which though relative and circumscribed is none the less real.

Sensation, understanding, are neither forces nor metaphysical entities; they are simply terms that sum up general characters of successive motions and states produced in the brain by the relations of a living organism with everything that limits, impresses, and nourishes it. All is invincibly associated together; and as there exists no gap between life and its inorganic materials, between

* Sleep is a general relaxation of the organism; it brings about a weakness of sensibility and a diminution of cerebral concentration, due to a momentary anæsthesia. Dreams are the play of images and of ideas delivered to themselves and deprived of control. But here we can do no more than refer the reader to the admirable work of M. Maury on "Sleep and Dreams" and to special treatises for the extremely instructive and conclusive pathological cases.

consciousness and its unconscious elements, there is no interruption between the phenomena of sensibility and those of the understanding. Not satisfied with supplying the understanding with all the materials necessary for its work, sensation suggests its method and teaches it its fundamental process—abstraction.

To abstract is, strictly speaking, to detach from a bundle of facts of any sort some one fact to be considered apart, independently of the whole to which it belongs. Such is precisely the office of sensation. The five senses are, by nature, abstractors. Each transmits to the brain a partial representation completed by all the others, and the sum of the sensations is adequate to the object represented. The understanding seeks in the memory the fragmentary images, resolves complete ones into their components. Abstract ideas become landmarks, points of comparison between the objects furnishing them. They themselves serve as materials for fresh abstractions, at once less determined and more comprehensive, which enable us to classify them according to their reciprocal relations or differences and various degrees of intensity.

Every partial image isolated by abstraction, whenever it coincides with other fragmentary images similarly detached from the complex reality, gives rise to a general idea, a sort of key under which are kept united the various objects and individuals stamped with a common character. Generalisation is an inevitable consequence of abstraction. It creates genera, species, types, categories, which it applies as a convenient measure to all objects that observation wishes to examine. Some are so comprehensive that they embrace all forms of substances. Such are being, form, number, space, time, motion. Their generality is constituted by the fact that the abstractions, whence they result, are given at once by all the senses. Others again are referable to each sensual order respectively, to contact, resistance, temperature, weight, &c.; to taste, smell, flavours, scents, and their gradations; to hearing, sonorousness, and its modulations; to sight, light with its sub-genus colour, and its varieties, red, green, violet, yellow, &c. What the sciences call genera and species are also collections of abstract characters all comprised in the foregoing categories. The entities of psycho-

logy, the faculties, the soul, the intelligence, have no other value or origin. They are nothing but groups of characters common to cerebral phenomena.

The general is the abstract of the particular, and has no existence except in the particular, or rather in the image transmitted to the brain. Metaphysics, however, have made it the first and determining element of the particular. In the fanciful metaphysical chemistry the abstracts take the place and assume the part of hydrogen, carbon, nitrogen, sulphur, or phosphorus. It adds, subtracts, multiplies, and divides; it would willingly express in ciphers, angles, or algebraic signs the proportions of being, of number, &c.; of heat, of weight, colour, sound, &c., that constitute such and such a body, such and such an individual. For it the sum of the universals and of their combinations is adequate to the universe. They alone are endowed with reality and necessary existence; they are absolute and primordial; the rest is contingent and accidental. Thus the products of mental elaboration, human concepts entirely subordinate and relative to sensation, are considered as the substance, the essence, the *raison d'être*, and the condition of the objects suggesting and the organism creating them.

Fortunately experience undertakes incessantly to oppose the concrete to the abstract; at every step it restores the vanished certainty. Man judges of things according to the observations he has made by means of his instruments. He cannot do otherwise; but he never confounds the original with the copy. He is well aware that the relation of an event is not the event itself, that the measure is not the body, that the idea is not the thing.

Some metaphysicians, more subtle than others, admit the existence of the object apart from the sensation which, photographs it, and from the understanding which in turn detaches and groups its various characters together. But they ask whether the image, partial or complete, corresponds with the reality whence it proceeds, justly enough remarking that this image varies (though still within certain prescribed limits) according to the instrument that fixes it, that it is relative to the sentient and intelligent organ of the

individual conceiving it. Hence they deny that it is possible to know what they call *the thing in itself*, and yet by a strange inversion speak of it as the *quoumenon* or *thing as conceived*, an obvious contradiction, since the *thing in itself* cannot be the *thing as conceived*, because it must be *that which is*, independently of all conception. Negation, in fact, is the only logical conclusion of an insoluble problem. We may add, that these metaphysicians are very proud of such a small result, treating as inferior or paltry spirits those who take no interest in an unprofitable play of words. They do not stumble over the rocks and blocks that lie in their way, and readily enough distinguish a man from a bird or a fish. If they are chemists, geologists, or naturalists, they harbour no doubts regarding the bones, the muscles, the simple bodies, the strata that they touch and study. As artists, artisans, or tradesmen, they handle their tools and materials with perfect confidence in the results; and in many cases they know perfectly well what are *in themselves* the objects that they observe, employ, or manufacture.

When judiciously restored to their proper place and function in the series of the cerebral phenomena, abstract and general ideas still remain the material and instrument of all the intellectual operations. They partake of the nature of the sensations whence they are evolved; persistent and capable of being revived, they accumulate in the memory, in some region suitable to them, and which is, so to say, the ultimate retreat of reason. Here ever in motion, ever struggling, associating, combining together, they receive the fresh supplies incessantly communicated to them through the sensori-motor nerves and fibres of the *encephalon*. Their most subtle operations are performed unconsciously. Like the sensations, they arrive at the conscious state only in virtue of the number, frequency, and intensity of the minute vibrations composing them, through the sudden shock or persistent pressure either of some one of them or of an unexpected reinforcement exciting and evoking them; lastly, through some change or acquired habit of the organism. When any of these determining events takes place, some given idea or group of ideas is aroused, comes forward, overshadows, or subordinates the others, and assumes the control of the cerebral work.

shop. Then we have *attention*. The elaboration of the ideas becomes conscious; the often capricious thread of the analogies and comparisons permits of being surmised and detected; the ruling thought (and all prevail in turn) causes it to vibrate, and with it vibrate the complementary or contrary ideas, their tones, and echoes. This is the stage of *reflection*. Then in this concert there are evolved certain harmonies which we call *judgments*; sustained themes comparable to melodious strains in unison, which are the consecutive reasonings, or ratiocination, round about which is developed the logical counterpoint with its endless modulations. The sum-total, the arrangement, the perfect harmony of these concerts executed in and by a conscious brain, has received the name of *reason*.

As memory summarised sensation, so reason sums up the understanding. The one is the rough sketch, the "first state" of the other. The former is a *farrago*, a confused medley in which the images and ideas are accumulated according as they are formed. Here a first classification is effected in virtue of affinities, outward or inward circumstances more varied than difficult to determine. The latter is an analytical table, a *store-house* in which the materials are disposed in connected groups, each with its analogues, its deductions, equivalents, contraries, examples to the point, &c. The two dictionaries are the continuous work of a special organ, the conscious brain, which never ceases to enrich and consult them, and which has recourse to the reason in order to recover itself in the memory. In this function of attentive reader, thoughtful, comparing, judging, and reasoning, it is called *the understanding*.

The understanding consults its compendium and encyclopædia only for the purpose of interpreting, grasping, and translating the prodigious library spread round about. It arranges the books according to their common characters, according to those general ideas which it has drawn from one or more particular objects, size, colour, title, distribution of parts. When it meets with a certain number of intrinsic or extrinsic resemblances, it assumes an analogy, a complete identity; it institutes categories and formulates laws. Then taking from the shelf one of the volumes it had placed there,

it deduces from these laws all the characters that they summarise, and that should be found in the selected work, as well as in all the others. The induction is a product, the deduction a strict division. When the induction is very circumscribed, like the mathematical or geometrical axiom, or certain elementary laws of physics, it becomes necessarily infallible, because already containing in itself all that deduction can draw from it. When the consequence so deduced is refuted by the fact, the law is false or incomplete.

We thus see that experience rules and concludes everything. It is at once the starting-point and the goal; no induction or deduction can avail against it. We feel, think, foresee, act, only in virtue of experience, past and present. There is not a single certainty that does not flow from it. Memory and reason are but its helpmates, the former more reliable because more immediate, the latter more hazardous because further removed from the sensorium, but also more skilful, more subtle, more intelligent. The one supplements experience, the other directs, occasionally leads it astray, but can never replace it.

So far the intellectual mechanism presents no phenomenon absolutely peculiar to the human brain. Amongst the higher animals of the insect class, and of the order of the vertebrates, sensation acts under the same conditions through the same organs. Inferior to man in the senses of touch and taste, they often surpass him in their keenness of sight, hearing, smell—a privilege which they possess in common with the savage. The general superiority of man depends on his structure, the perfection of his tactile nervous system, and especially the development of the encephalon. These differences of degree, however otherwise remarkable, affect the intensity but not the intrinsic nature and association of the facts of consciousness. Neither memory, abstraction, attention, judgment, nor the amount of reason compatible with their cerebral organism, are found wanting in the dog, who recovers his way, and philosophises on the habits of game, or in the squirrel, who makes provision for the winter. With these traits of intelligence, besides so many others, we are all familiar.

Amongst animals also we shall detect the germ of that faculty

which has raised man above his former compeers, and which, jointly with the invention of fire, has conferred on him the empire of the earth. Such is the faculty of imitation, of signs, and speech.

We have seen that the sensation, the image, the idea, are persistent, and capable of being revived. But unless refreshed and renewed, they grow faint and vanish, like imprints left on the sands of the sea-shore. This gradual waning is observed amongst all animate beings, man included; and it has its advantage, for it leaves room for fresh images, establishing, as it were, different planes in the perspective of the past. But it renders the memory restricted, consciousness precarious, and experience uncertain. A phenomenon associated with sensation intervenes to protract its duration. This is the nervous and muscular reaction transmitted from the centre back to the periphery in the form of gestures, outward manifestations which mimic, or in some fashion translate, the received impression. These signs, extremely vague amongst inferior animals, acquire more precision, more variety and independence, as we rise in the scale of beings. Omitting mere mimicry, which receives such a useful application in the education of the deaf and dumb, let us come at once to the sign pre-eminent beyond all others—to the utterance of vocal sounds.

We know that the vocal apparatus is composed of the larynx, the tongue, and the cavity of the mouth; it is here that sound is formed, though not spontaneously. In the third frontal convolution of the left cerebral hemisphere, and, that failing, in the corresponding right one, there exists a region close to the cortical layers recipients of the sensible impression, and connected with the organs of the voice. Here is the seat of the faculty of speech; hence is transmitted the impulse that sets in motion the laryngeal chords.

The language of animals is poor, as are their memory and ideas. The slightly varied intonations composing their vocabulary express nothing beyond the more immediate characters of sensation. The aspects and relations of objects, form, colour, distance, number, more or less confusedly perceived by them, find no expression in their speech. As for man, he began, as shown by linguistic analysis, with a cry, a plaintive or joyful exclamation, such as

forms the foundation of the language of infaney. But from the very first the relative perfection of the *common sensorium*, the accumulation of ideas in the memory, determined a greater variety of vocal utterances. The cry could not suffice to express the individual sentiments and wants which were soon multiplied by the social relations.

The vowel, the liquid, sibilant, and rolling sounds, became slowly graduated by the very effort of the vocal apparatus to imitate noises, to indicate things and their images, an effort continuously stimulated by the brain. The true consonants were at last differentiated from the aspirate, and by the action of the throat, closing and opening of lips and teeth, they became arrested, and, so to say, hardened to the consistency of gutturals, dentals, and labials. The work of differentiation and polish doubtless required long ages, and linguistic analysis opens a glimpse of a remote period when, besides the sibilant and liquid trill there had been developed nothing beyond a confused articulation still hesitating between the *κ*, the *ρ*, and the *τ*. In the animal language we detect the consonant already dawning, but still surd and monotonous; each species has but one, if at least to the horse and ass may be attributed a nasal and an aspirated guttural; to the ox and sheep a labial wavering between *m* and *b*, to certain birds or insects a sort of dental. But it is none the less the distinct consonant, articulate speech, that determined the distinctly human evolution of the mind.

The example of animals sufficiently establishes the fact that memory, abstraction, reasoning, exist independently of articulate speech; but it no less clearly shows the degree of sterility to which the most fruitful faculties of the brain were condemned through the absence of this powerful aid. What would man himself be without speech? Some idea may be formed from the wretched state of a few children lost in the woods for a number of years, and from the cerebral inaction of the uninstructed deaf and dumb. With what an intuition of the truth the Greeks expressed by one term *word* and *reason*! How excusable were those who converted the *Λόγος* into a God! It is the very name of man himself.

Language has its illusions; it is a good mingled with evil; it snaps the thread connecting understanding with sensation, and through it man himself with the series of living beings. It induces him to separate his cause and his destiny from the impassable concatenation of things, to look for his origin in the region of general ideas, in that microcosm created by the verb and the noun. For the universe he substitutes a mirage projected into the void, multiplied by the imagination, studied as an objective reality by a perverted logic, by a distorted reason.

But the very nature of speech suffices to dispel these phantoms. Language exists only in virtue of the physical and material union of the third cerebral convolution with the vocal apparatus. The evolution of language has for its indispensable condition certain organs of the senses, sensations, nervous transmitters, a cerebral concentration, a reaction of the encephalon on the larynx. Articulate speech implies a bucco-nasal cavity. The whole involves an extremely complex combination of substances, whence results the living being. It follows that the existence of a result called thought or reason is bound up with the existence of an organism, of a medium sustaining its activity, of organs exercising it, that is to say, of lungs, of a heart, a stomach, and accessory viscera; of senses, nerves, a brain, a larynx, nose, roof of the mouth, tongue, jaws, and lips. Hence there cannot, does not exist, either thought or thinking being, apart from these conditions; which cuts short all theorising about an infused intelligence, exterior or superior, scattered or condensed; about Divine plan or design; about all immaterial forces enclosed in a prison of flesh; in short, all metaphysics and theodicies. We doubt whether this accumulation of concatenated certainties will ever be shaken.

We have elsewhere explained the laws of linguistic development,* and M. Abel Hovelacque's work in this very series† relieves us from the necessity of here classifying the orders, families, and varieties of ancient and modern languages. We may, however, be

* "Linguistic and Philological Studies," Ernest Leroux.

† "Science of Language," translated by A. H. Keane. Chapman and Hall. 1877.

permitted to commend the following brief reflections to three classes of thinkers: To the monogenists, who hope all idioms may ultimately be reduced to a common source; to the "believers," who are easily satisfied, and pay honour to the Deity for the invention of language; lastly, to the subtle metaphysicians, much more allied to the preceding than they would like to confess, who in language recognise a creation of reason, a realisation of previous types, the concepts of categories of noun, pronoun, adjective, verb, nay, preposition itself, and who would be quite ready to admit that the parts of speech existed before speech and might exist without it.

The variety of languages in the present day can scarcely be an argument against a primitive unity. At the same time the reciprocal irreducibility of the four or five families that philology has already succeeded in establishing, militates strongly in favour of an original diversity. The progressive succession of the three forms known as monosyllabism, agglutination, and inflection, in no way weakens this probability. They are three stages of evolution, but within which there are found idioms absolutely distinct in their vocabularies. All men, and consequently all human tribes, have not been similarly affected by the various aspects of things; they have not interpreted them by the same articulate sounds; the sounds themselves differ according to race and individual organism to such an extent that the onomatopoeic terms—those first rudiments of speech—vary amongst different peoples even to the present day. An Englishman, a Frenchman, and an Arab, for instance, will not reproduce identically the utterance of the ox, sheep, or dog, or the sound of wind, water, thunder, &c. If such disagreement occurs in simple imitation, how may it not have become intensified when onomatopoeic sounds came to be employed as arbitrary signs to express sensations independent of the sense of hearing! It was increased a hundredfold when the primitive monosyllables were constrained to interpret the abstract ideas arising one from another in the memory, and which grow with the growth of expression. This parallel diversity of sounds and ideas has no other limits than the indefinite number of possible combinations, of images on the one hand, on the other of vowels and consonants.

Let us consider that, apart from all the known and unknown circumstances which may have associated a particular sound to a sensation, to an image or idea, there is no intrinsic reason why the Aryan roots *sa*, *ta*, *ya*, rather than *tok*, *rup*, *vag*, or any other syllables should mean *he*, *that*, *who*. And the sense of the roots once tolerably determined, their use becomes a matter of indifference. To name the various objects there was the option of choice between their various qualities, that is to say the various sounds expressive of those qualities. All nouns, whether adjectival or substantival, all affirmations—that is to say, all verbs—may be said to represent, by means of arbitrary sounds, some one quality which happened to prevail, according to the individual, the vocal organ, the climate, the passing circumstance, and which remained in possession, to the exclusion of other qualities or sounds equally fitted to the same purpose. The confusions and false distinctions arising out of the use of homonyms, polyonymous, or synonymous terms are explained by the fortuitous choice of vocal sounds, and correspond to the first tentative essays of the association of ideas, to all that slow progress that has been brought about in the uncertain light of language. According as speech fixed and enriched thought, thought reduced speech to order and system. Words were disposed in classes, while ideas were arranged in propositions, judgments, reasonings. Grammars were the faithful images of the mental states. The disproportions observed at times between the linguistic and rational organisms are easily explained by the migrations of peoples and languages, by the innumerable contacts of barbarisms and civilisations.

Each of these considerations might give rise to extensive developments, but taken collectively they sufficiently prove the indissoluble original unity, and the simultaneous development of articulate speech and of human intelligence, the identity of language and reason; lastly, the nullity of the theological or metaphysical explanation.

By relieving and supplementing the memory, language gave full scope to abstraction, thus raising man above the immediate sensation, above the purely animal state. Terms, answering to ideas,

became the substitutes for the image. It is by words and in words that ideas are associated together, mutually suggest or oppose each other. Even in sleep, when the individuality is effaced, when attention and reflection are weakened and reviviscent sensations disport themselves in the brain, the vagaries of dreams are still interpreted in words.

Lastly, writing, at first concrete, hieroglyphical and ideographic, then abstract, syllabic, phonetic, by adding visual, tangible fixity to the sonorous expression, came to raise the power of language and of reason to the highest pitch. In writing, we include the cipher, the line, and that algebraic notation which reduces to a common measure, quantity, number, dimensions, and motion, categorical abstractions, from which nothing in the universe escapes, and to which are reducible all the relations of things. Language had created poetry; writing created prose, that is to say, history and science. It delivered thought from the consecrated formulas of rhythm and song, which alone secured it from oblivion. Thought was thus enabled to apply words directly to observed facts, to preserve and transmit the past to the future.

By writing, communities and nations took cognisance of themselves as of living beings. Humanity was born—humanity, that grand and legitimate abstraction, that general idea, which contains nothing but the characters common to all the elements whence it was derived, for it merely personifies an aggregate of individuals. We can assuredly accept, only as a term of comparison, the identity that enthusiasts would endeavour to establish between it and the individual, speaking in metaphorical language of its obscure childhood, with its fading reminiscences, its exuberant adolescence, blossoming into art and poetry, exulting in fierce and sanguinary struggles; its youth troubled by the inconsequences of its previous life, by the grand or baseless visions of a disordered fancy; lastly, its manhood, now beginning, and which, beyond the ruins of its follies and traces of its errors, dimly foresees ultimate repose. Like all ideal pictures, this embodies a portion of the truth. But from this magnificent conception, elaborated by ages, there rises the beacon which must guide man to the fulfilment of his destiny. Is

not humanity the aggregate of the sciences and moral systems? Of all the individual brains, does it not form the cells of a common cerebral centre, where the poorest become enriched by contact with the more richly endowed? The various communities become the mechanism of a general organ, which is perfected under the influence of natural selection, increasing the strength and number of the useful members, correcting, suppressing, reducing to a state of atrophy the useless or vitiated. Order, absent in the universe, has been introduced by the genius of man, and humanity emerges above the horizon like a statue of Justice.

But we have not yet done with the individual; it remains to be seen how sensibility and understanding lead him to action, how the passive state is transformed to freedom.

§ 3.—*The Will.*

In the series of phenomena summed up in the word "sensation," or consciousness, the first—that which, before all determination or analysis, characterises all sensation transmitted to the encephalon—is the more or less precise or intense perception of the shock propagated in the tissues and viscera along the trajectory of the nervous fibres. This general sensation—a sort of accompaniment to the tactile, visual, auditory melodies—oscillates between two diverging alternatives, called pain and pleasure; or, to employ another image, pain and pleasure, varying with the intensity of the impression, and the normal or accidental state of the affected organism, represent the two poles of personality. On the imaginary line connecting them is situated the *ego*, beyond which consciousness ceases. Their action is alternating or simultaneous; their forces are mutually opposed or combined, multiply, divide, or balance each other. The brain distinguishes and compares their several quantities, distributing the impressions round about the two fundamental extremes. This judgment or affirmation is the first in order of the facts of consciousness.

Thus from the outset the person, constituted by the concentration of the nervous system, and determined by contact with the

world limiting and sustaining it, is in possession of two distinct measures, which it applies to all relations, whether of the organism with the brain, or of the surroundings with the organism. Must we give up the hope of discovering the causes of a distinction which is the starting-point of individual activity, and of the moral and social life? By no means, for pain and pleasure are none of those transcendental categories of which metaphysicians are so lavish. In the first place, they belong to the animal world, and occur nowhere else; secondly, they are present in all forms in all stages of life, properly so called. Hence it is in the most elementary and general conditions of the living state that their origin must be sought. It is here that we shall discover the secret both of the movements producing them and of those engendered by them.

Life is, as we know, an alternation of endosmose and exosmose, of assimilation and rejection, of composition and decomposition; in short, a perpetual change. All the tissues, all the organs, all the functions, contribute to this twofold work, which has formed and which sustains them. The normal succession of the absorptions and eliminations constitutes health. Every disproportion or interruption of equilibrium involves decay, and, if continued, death. The voids must be made good, and the superfluous rejected; an inevitable necessity, from which not the most ethereal of metaphysicians or idealists is exempted.

Want is the general cause, or, to speak more correctly, the antecedent of pain and pleasure. Everything delaying or hindering the satisfaction of want entails impressions of the first order, everything favouring or appeasing it, those of the second.

Want is the law of life, increasing, growing more complex and manifold with the living mechanism, a constant proportion being maintained between the two. The position of an individual in the series is measured by the number of its natural and acquired wants. To such an extent does this hold good that the want of the superfluous, which is not the same thing as the useless, has been justly regarded by M. de Quatrefages as the mark of human superiority. In fact, it is the beginning of all industry, of all art and wealth; it is found amongst some provident animals;

in man it reveals itself in the very lowest stages, never ceasing to grow with civilisation. We shall presently see it at work in the formation of communities. But we are here considering it only in the individual.

• In Dr. Le'tourneau's excellent "Physiology of the Passions" may be seen a learned analysis of wants, classed according to the function producing them, and the organ of which they are the seat. The most urgent, those which suggest the most general idea of pain and pleasure, belong to the order of confused sensations which we have called internal or organic. They are associated with nutrition, respiration, circulation, digestion, excretion, and secretion. They precede, accompany, or follow all the acts of the digestive canal, of the lungs, venous and arterial systems, stomach, mucous membranes, and the kidneys. All experience and are familiar with them. Amongst them is one more special and not less potent, presiding over the union of the sexes and reproduction. From it proceeds love, the typical passion, on which so many pleasant though still distorted theories have been built. Each of these special wants has its distinct province and particular manifestations. Nevertheless, all meet and become confused in a more general want, which is at once their common character, their element and result, the need of motion whether partial or complete. It may be called life itself, or another name for life. Locomotion, and consequently the need of locomotion, which is merely the acquired habit, is observed in the lowest animate forms. They are developed in the fetus as soon as the various parts of the organism have assumed their proper form and place. In the child they precede the awakening of the senses long before a sufficient number of impressions have been transmitted to eye and ear to determine the senses of sight and hearing, even before the touch can have conveyed any distinct sensations to the brain; the moment direct respiration elicits the first cry the arms and legs begin to move; presently the hand, under the stimulus of the want of nutrition, grasps first the breast, then all prominent objects within its reach. Later on, sensation properly so called, that is, from without, acting jointly with the growth

and consolidation of the organism, will excite more complex and personal movements of the head, arms, and feet.

Like the tissues, the senses have their wants, arising from their very use, and combining with the organic wants. These, however, are intermittent and optional, already leaving to the individual some latitude in the choice of the appetites stimulated by the senses of touch, smell, taste, hearing, and sight.

The cerebral activity will in its turn give rise to wants of a higher order, resulting from more modest impulses. Passing through the memory, the association of ideas, the reasoning and imaginative faculties, the sensuous wants become intellectual. Henceforth the want of touch, sight, hearing becomes one of knowledge and thought; the want of movement one of action.

Lastly, all this series of active wants has for counterpoint a need of repose more or less prolonged, partial, or total, measured by the exhaustion of the organs, by the natural or acquired energy of the complex mechanism and individual temperament.

It is scarcely necessary to dwell on the endless variety of our wants. But we should never forget their subordination to the medium, whether organic or external; their differences or divergences never leave room for anything resembling what is honoured with the name of absolute freedom; they are always determined, explained, stimulated or weakened, brutalised or refined, liberated or co-ordinated by complexion, inheritance, education, habit, profession, climate, mutual relations, social state.

Even in the order of organic wants, from which none of the higher vertebrates can escape, since they are the very condition of life, how many gradations might not be pointed out? It will be enough to consider the different human groups scattered over the extreme and temperate zones, on the islands and mainlands, in the lowlands and uplands, the time of life causing the nutritive and genetic wants to predominate each in its turn; the pathologic states, or normal dispositions, which intensify or atrophy the respiratory or excretory wants; health, which restores their equilibrium to the functions and requirements of all the organs. And, however little we may feel disposed to admit the necessary

and preponderating influence of these wants on the individual conduct, on social direction, the destiny of each individual and of all mankind (and how can it be denied?), we must needs confess the hollowness of the speculations on the autonomy of the *ego*, the liberty of the soul and the autonomy of reason. The fact is the organic necessities are always present, crying out till appeased, drowning with their clamour the harmonies of the imagination and the concerts of thought. There are wretched tribes and herds whose energies are exhausted in the endeavour to satisfy such wants, and who yet fail to appease them. Ask of such peoples an art, a science, or a literature, and they will fail even to understand you.

Doubtless all humanity is not condemned to this last degree of slavery. As Hercules lulled Cerberus with a sop, the higher-endowed races have been enabled partially to disarm their tyrants by the payment of regular tributes. Here there has been a sort of tacit contract, which no one can violate with impunity, and the strict observance of which alone secures for sensation and understanding the leisure devoted by them to the satisfaction of other more noble and less urgent necessities. But the brain rules only while the viscera are in a normal state; when they rebel and speak out, it must needs obey them. It fancies itself free, but it is never anything more than enfranchised, and, like the Roman freedman, still attached by lasting ties to his former master; it feels at times the pressure of the secret shackles of its original thralldom.

To each want corresponds an instinct, which is its interpreter, or rather synonym. Instinct has been very correctly defined—a habit fixed by inheritance or education; and want is precisely the same. All that has been stated respecting the universality of certain fundamental wants, or the individual variations of others, is equally applicable to the instincts, whether natural or acquired.

The unconsciousness of instinct and of the instinctive movements has been the subject of much controversy. Hartmann is pleased to recognise in instinct the wisdom of an imaginary being, whom he calls the Inconscient. Most psychologists have very judiciously distinguished between the instinct that has not yet reached

consciousness and that which has got beyond it; but the same remark may be equally made of all the sensuous or intellectual phenomena. We know by what imperceptible gradations the molecular combinations—life, sensation, image, idea, reason itself—pass from one state to another. Consciousness is an echo situated at the focus of all the organic arteries; it answers only to shocks sufficiently strong either to make it vibrate or to arrest the vibration produced by previous or simultaneous concussions. There are some which are not transmitted beyond certain secondary centres, here losing themselves in direct reaction and reaching consciousness only in combination with the confused sensations of the internal activity. Others again reach the common *sensorium*, but traverse it without making themselves felt, deadened and neutralised, as it were, by more powerful or newer impressions; but they are none the less distributed over the cerebral regions where ideas and judgments are elaborated, here persisting in the form of reminiscences and habits. Many have been perceived and felt, then forgotten; they remain, so to say, understood, implied. Left to themselves, like all the other elements of the person and the intellect, they cease to be watched over by consciousness, which has other work to do; for is it not incessantly engaged in recording the arrival of other materials intended for the cerebral laboratory?

Consciousness is not indivisible; it is a series that may be likened to the succession of the luminous and sound waves. It is difficult to indicate the point where it begins or ends, a point otherwise variable according to the individual and the surroundings. It has its *minimum* and its *maximum* of intensity, characterised by attention and reflection; want or instinct remains either on this or the farther side, but can scarcely be spoken of as absolutely unconscious.

The instincts, like the wants, may be disposed in two classes, according as they relate to the organic, or to the sensitive and intellectual life. Typical of the first is the instinct of preservation; of the second, that of curiosity. The two groups combine in infinitely diverse proportions. They bring equally into play all the resources required under their successive or mutual influence—

memory, association of ideas, comparison, judgment, imagination, reason.

This vast operation implies an endless number and variety of acts, excited by want and instinct, guided and controlled by intelligence. These acts are really produced; they are the results of movements aroused in the brain by the organic or sensuous impressions with their intellectual repercussions. They are, therefore, of an essentially reflex nature. Certain nervous filaments communicate to various regions of the encephalon diverse shocks, which, through certain other fibres, the brain passes on towards the periphery, distributes to the muscles of the body and its members, and even causes the special agents of organic life to feel. The mechanism of this transmission, of this interchange of impressions, is known as a whole and in many of its details; its very intensity, extent, and duration have been measured by physiology, which has calculated the amount of heat liberated by its operation, and analysed the residues, the uric secretions.

The distinctions which we draw between actions, reside neither in the impulse determining them, nor in the instruments executing them; neither in the principle nor the end. They must be sought in the phenomena preceding and accompanying the determining impulse, in a word, in the preliminaries of the action. According as consciousness takes greater or less part in them, actions are said to be instinctive or voluntary.

In point of fact, want, whether organic, sensitive, or intellectual, natural or acquired, will sometimes set directly in motion the cerebral machinery which distributes the movement to the special organs, and the action is then produced before attention or reflection have had time to study its antecedents and perhaps disturb its course. Thus are effected the movements necessary for respiration, for swallowing, for digestion, or the utterance of an exclamation, here shock giving back shock, defence corresponding to attack. Thus the habit of a particular walk or the direction of a given place causes one foot to move mechanically before another; thus a sudden meeting, the recollection of an idea or a word, makes us turn our head or stretch our hand towards a book or a dictionary.

All such are instinctive actions of various sorts ; they are innumerable, and it would be impossible to overrate the importance of the part they play in human life.

At other times want of a less urgent character, and also less confident of being appeased, allows of a certain latitude, both as to time and the manner of procedure ; it is now no longer the arrow flying straight to the target, but rather the water that flows down an incline in its passage across all the cerebral regions ; it becomes entangled in the normal mechanism of sensation. Its passage awakens the memory, arouses all the images left behind by analogous or contrary wants ; the ideas become associated, clash or compare together, throw obstacles in its way or promote its progress ; possible actions, their known dangers, their probable chances are weighed ; judgments are formed and strung together as ratiocination. The thinking mechanism is affected by the various states known by the name of attention, comparison, reflection. Imagination and reason appeal in turn to experience, near or remote interest, circumstances, temperament. Motives are presented, alternatives become emphasised ; there arise doubt, hesitation, calculation, what we call deliberation. Occasionally the quantities neutralise each other, and the want is set aside or deferred. Or again, some motive, strengthened by a foreseen or unforeseen opportunity, general or particular, stands out in bold relief, overshadowing or stifling all resistance ; then there is said to be choice or will. This grows and touches the spring of action, which is then produced with full knowledge, which is reflected without ceasing to be reflex, weighed and willed without ceasing to be determined. Were it not determined, it would have no *raison d'être*. There is nothing beyond all this in the faculty which we call *will*.

The person, the *ego*, being at once the concentration of the nervous systems in the encephalon, the series, in fact, of the cerebral operations resulting from, and of the movement preceding, them, language rightly affirms that this *ego* reflects, deliberates, chooses, wills, and acts. When it calls the person itself *will*, it summarily designates the *ego* by its decisive and final manifestation.

When language says that such a man has a will, resolution, is wilful, it confuses the habitual or momentary energy with the fact of volition; when to will it attributes deliberation and choice, it reverses the terms, abstracting the result from the operations that have led up to it. When human speech isolates the will from the living organism and from the cerebral phenomena producing and constituting it, when it transfers this will to the combinations of the inorganic substances and to the sum of the motions diffused throughout the universe, it is beguiled by the most obvious and deceptive anthropomorphism.

To the process and effects of the will, poetry may agreeably compare the molecular affinities, the revolutions of the stars, and the development of vegetable life. In doing so, it does but fulfil its office, which is to animate, to personify all things. But metaphysics, inventing with Leibnitz and Schopenhauer a will for their monads, with Hartmann a will for his Inconscient, with all the spiritualists a will for their pretended universal order, personified as Providence, does extreme violence to the meaning of words, and tramples under foot the most elementary psychological principles. Will, like all other momenta of the cerebral elaboration, implies, and the point cannot be too often insisted upon, a living and conscious organ, so constituted that the outward and inward sensations are there concentrated, associated, and preserved in a special organ, which to the members, the instruments of action, transmits and distributes the movements excited in it by the viscera and surrounding medium. In no other place, in no other kind of body, is will produced, any more than are sensation, reflection, reason.

In our summary analysis of the operations leading up to *volition*, the true name of the phenomenon of which the term *will* is the general and categorical qualification, we have not brought forward *desire*, not because it is absent, but because this term, so useful and so clear in language, expresses nothing beyond a degree or phase of want. It is, more particularly, want reaching the conscious state; after which both terms may be employed indifferently. We thus see how and to what extent desire may be legitimately regarded as

the cause, the germ, the synonym of velleity, of volition, of will itself, or as the guide and object of the action.

Pain and pleasure also have been implied rather than expressed, because they are inseparable from all want, from all instinctive or voluntary acts. It was enough to point out the endless variations of their alternating gamuts, kept constantly at play by all the organic functions, by all the sensuous concussions, by all cerebral operations. We know that they change in degree and tone without changing their nature, that they are present at every decision, that every effort aims at avoiding or overcoming the one, reaching or obtaining the others, whether in the individual or social order. And volition and action with all their sequences may be said always to be a view, whether just or erroneous, and the employment of the best means for escaping from, shortening, diminishing, vanquishing, compensating pain near or remote, acquiring, purchasing, in a word, realising pleasure, organic, intellectual, or moral.

The analysis of the operations that determine will prejudices the question of free will and of freedom, which metaphysicians confuse together. According to them, freedom is the primordial, irreducible, absolute character of reason, which they consider as the *essence* of the human being. But neither is reason an essence, any more than is liberty absolute, still less irreducible. Reason is applied experience, a term summing up a complete aggregate of successive phenomena. Liberty nowhere makes its appearance in these strictly connected phenomena, any more than it does in the imagination, which even in its most unforeseen flights is still controlled either by instinctive habit, or by desire, by a sensation or a reminiscence. As we shall presently see, liberty resides in the act, but it is limited and relative.

Whence, then, can have arisen the metaphysical illusion? In the first place, from the endless diversity of the motives which, according to the circumstances and temperaments, may assert their ascendancy and direct the action; in the second, from a confusion between consciousness and the concept of freedom; lastly, from another confusion between will and power.

A great outcry has been raised about a pretended liberty of indifference. I put out, it is argued, the right or the left foot indifferently; I expectorate here or there. Strange subterfuge! The partisans of absolute liberty, of free will, pretend to rely on instinctive acts, that is to say, the least voluntary, the least free. It is easy enough to drive them from this last retreat. For, in point of fact, nothing is more determined either by habit or by some given motive, that is to say, by the constant or passing predominance of an impulse, than these pretended manifestations of liberty.

Most men know, or fancy they know, why and what they will; they know that under the same circumstances they have willed differently, and foresee that another day they may again will otherwise. They have at once the memory of their past, the consciousness of their present will; they recall either simultaneously or in turn the influences which they have obeyed and may again obey; they imagine one or more series of circumstances in which some given motive formerly neglected, or yielded to, shall again assume the ascendancy or give way to others in its turn. Struck by a hypothesis, which itself becomes a determining motive, they will cause circumstances to arise in which the foreseen volition must prevail in their choice. And then they fancy they command, whereas they will merely have forgotten the links in the chain. Whatever be the number of the motives supplied by the association of ideas and consulted by reason, whatever be the complexity, depth, or duration of the deliberation, reason will never do more than perceive and recognise the decisive motive. To will with full knowledge of the circumstances is not to will *freely*. Take the most conscious person, the best instructed, as to the "pros and cons;" was he free to will otherwise than he did? Those who reply in the affirmative mentally eliminate the circumstances which would have reversed the order of the motives. ..

We readily say to will is to be able; and as *power* is precisely the synonym and measure of liberty, will and liberty become identified. But the aphorism needs explanation. It means that the persistence of a will clearly conceived is the best condition for

securing a given end. The two terms are correlated; but the correlation is still far from being constant. For who has not at times had the will without the power, and *vice versâ*?

Will is the knowledge of an end and a means, and the desire to achieve the one by the other. And what is power but a conditional virtuality?

A virtuality is nothing *in itself*; it is a mental anticipation, a result of induction, which, according to the usual succession of facts, attributes beforehand to the antecedent the force, the *virtus*, the power of producing the consequent. Water flows and the wheel turns; the water has the power of making the wheel revolve. The tooth of the jack bites and the load rises; the jack has the power to lift the load. But suppose the wheel does not turn, or the load remains stationary? Where is the power of the water or the jack? The mechanician considers that this power still exists, but is neutralised by a rival power, resistance; he measures these conflicting forces, and increases the one in order to overcome the other. But he measures them by what he calls their results. In these results resides all their reality.

These forces, general expressions to some extent personified by language, are for the exact sciences abridged formulas of a whole series of facts necessarily concatenated, consequently capable of being foreseen and realised. Abstracting everything implied by them, the calculator places them at the head of the possible series, and from their intensity deduces the consequences, which are to some extent ascertained beforehand. Mathematicians find it very difficult to escape from the verbal fiction, whose marvellous efficacy has been practically tested. Most of them are firmly convinced that, before any results are produced, there exist—if not in the bodies themselves at least in number, in geometrical figures—certain virtualities ready to reveal themselves, virtualities which are the very soul and essence of phenomena. It is on the ground of this illusion that mathematics and metaphysics are so nearly allied.

But what for the former is merely a useful convention, becomes for the latter an inexhaustible source of dogmatic vagaries. Meta-

physicians flourish and reason solely on virtualities. For them the generalisations of language are realities, superior entities, occult causes, independent of the series of phenomena that they more or less correctly summarise. The ego, the soul, the faculties, are nothing but virtualities. But the cerebral phenomena being far more complex and shifting than the facts, certain characters of which are studied by the mathematicians, it follows that the pretended philosophic principles, even taking them as mere words, do not correspond with things, with observed facts.

Power is therefore a tie conceived by the mind as existing between the first and the last facts of a series. Considered at its starting-point it is a virtuality. When the intermediate links and the goal are absent it is *naught*. To say that the will contains the act potentially is to say nothing. According as the act begins, is arrested, or completed, the power acquires an appreciable reality; but not through the will, which is but a link in the series of conditions. The chain stretches from the outward medium, in which the living organism has been developed, through the organic or external sensations, want, association of ideas, comparison, deliberation, choice, volition, by action returning to the medium whence it had started. Here it either meets or does not meet with opposition, passes on or yields to resistance, deviates from or continues in the straight line, reaches or falls short of the goal.

Where is liberty in this concatenation? In the absence of obstacles. Where power fails liberty vanishes. Before the action has begun, liberty, like power, is a mere virtuality, has no real existence. Nothing is more limited, more capable of being divided or measured, nothing more conditional, more variable or relative than liberty. In its widest compass it has a certain end, the limit of power, the accomplishment of the act. It is restricted in space by the physical, physiological, social laws; in time, by birth, disease, death.

When the arm is paralysed, where is the freedom to move it? When the ear is similarly affected, where is the liberty of hearing? When man is shackled, is he free? When between the goal and the act there intervene the obstacles of insuperable distances,

individual and social miseries, the tyrannies of the sword and the law, is man free? He is free to the extent of his power.

When the organic and cerebral springs of action are neither broken nor strained; when the operations of the mind are performed in the normal order; when no outward pressure, present or immanent, chronic or sudden, intervenes to quicken, suspend, or distort their course; when all the motives capable of determining the act have had time to pass successively through the conscious state, we say, and we are justified in saying, that man is free to think, to judge, to reason, to will, that he is self-possessed. It is this concurrence of favourable conditions that constitutes free will. The word may be employed as long as we understand its meaning.

Liberty, as we thus see, is the unshackled exercise of the organic functions either in their inward activity or their relations with the outward world. Itself conditioned by the state of the visceral, sensorial, cerebral, and muscular mechanism, and by the surrounding circumstances, it is the condition of the act intended to satisfy the want of the moment; but, as stated, a variable condition, whose irregularities arouse comparisons and reflections in the mind. From this mental operation is evolved the abstract idea, concept, or absolute category of liberty, a type to which the memory refers all the classes of action approaching or diverging from it, an ideal through which may be realised all desires and all hopes. Once conceived as the sole means of answering to all the exigences of want, liberty becomes the supreme want, and interest the most precious and enviable of possessions. Henceforth all efforts aim at placing man in the internal and external conditions calculated to secure and enlarge this liberty, to diminish or suppress the obstacles opposed to it, to widen the frontiers of its domain. In his enthusiasm man will even attempt the impossible, overstepping not only the limits that his energies may remove or set aside, but those even which have been marked out by inevitable fatality. Nay, he will neglect the very conditions of activity; beyond the organism and this life dreaming of a substance at once simple and subtle, an existence, and consequently a liberty, without bounds. And thus is formed the illusion of metaphysical liberty.

But before committing himself to a flight amidst the chimeras of a future state man does not lose sight of real liberty, relative and expansive. While endowing himself with the virtual he does not forget action. Step by step he adds to the sum of his powers. He defends the freedom already acquired, and if deprived of it, he still returns, entrenches himself in it as in a rampart, beyond which he will not yield. Sure of his retreat, he marches forward, all these struggles, defeats, victories, contested progress, constituting the very history of human intelligence and activity, the history of all life, from the humble rhizopod to the cultured citizen of the commonwealth.

Is it now at last evident why all acquired liberty is declared inalienable, why all desired liberty, once conceived, whether possible or not, is already proclaimed imprescriptible? It is because freedom is the very career itself of action, because action is the satisfaction of want, because the sum of the natural or acquired, true or fictitious wants, calls for an equal measure of freedom.

CHAPTER IV.

THE INTELLECTUAL MECHANISM IN ITS RELATIONS TO THE UNIVERSE AND SOCIETY.

§ 1.—*The Interests and the Passions.*

THE moral world is not constructed in the clouds like the "Nephelococcygia" of Aristophanes, but reaches through its successive layers down to the very heart of the zoological world. Want, instinct, curiosity, with all the mental activity excited and quickened by them, the association of ideas, reflection, deliberate volition, have gathered, carved, polished, embellished the materials, laid the foundations of the successive storeys, adapting the occupant to the dwelling and the dwelling to the occupant. Obligation (the categorical imperative), that is, the cement which binds the walls

together, is not so homogeneous that the interests and passions entering into its composition may not be detected. Lastly, the pure concepts which, though grouped around the summit, would gladly credit themselves with the design of a structure older than themselves, and but for which they could not have arisen, such concepts are by no means necessary ideas, but ideas *necessitated* like all others.

But to reach the pinnacle let us start from the foundation. This is the same whether we deal with the intellectual or moral world—human nature and its conditions, sensation, and want; or, in other words, the relation of a centre of impression and reaction with the organism and the outward world.

The character of all relations is the interest oscillating between pain and pleasure, between desire and aversion. Who says interest says want, who says want says sensation, organic or from without, confused or distinct, with its sequence of instinctive and voluntary acts. Interests are of diverse kinds, organic, sensorial, cerebral; and of diverse degrees, positive or negative. These interests regulate all the relations, present or possible, of the individual with things, with animals, with his like.

The kinds and degrees of interest answer to the different modes of relation, that is to say, to the manner in which it affects the sentient being. Hence, we shall call *emotional* or *passive*, the sentiments and acts proceeding from the various interests, and these phenomena will be grouped in the category of affection or passion, with its numerous subdivisions—astonishment, admiration, attraction, fear, anger, hatred, &c.

Common speech has extended or restricted the meaning of some of these terms. Thus *sentiment* expresses at once the general property of feeling, and all instinctive or reasoned opinion: *tot capita, tot sensus*, so many men, so many minds. We shall endeavour to employ it in one only of these senses, that of *judgments*, in which but a small part is played by reflection, either because it may not have had time to interfere or have lost the habit of doing so. *Affection* again has become synonymous with kindness, friendship, love, and we shall restrict it to this last sense.

By *passion* is usually understood a vehement and lasting sentiment; we shall apply the term, according to its original and general meaning, to all organic or outward impulses determining a series of desires, of volitions, and acts, concurring to one and the same end. At the same time the importance of these distinctions and shades of meaning need not be exaggerated. For, after all, what are sentiment, affection, passion? Phases, corollaries, results, almost equivalents of want and interest.

Numerous and momentous are the interests and passions brought into play by the relations of man with inorganic and animate nature. When physical they tend to possession; intellectual, to the knowledge of the universe.

To the first class belong the chase, fishing, the taming of animals, preparation of food, then the search for shelter and protection against the weather and wild beasts, the employment of fire, dress, dwellings; lastly, everything contributing to the individual preservation and security, but above and in all, the instinct of property (equivalent to the love of life), and labour, the aggregate of all the industries intended to satisfy it. Here is the immediate seat of pain and pleasure—two sentiments which determine all thought and action. Whether thing or being, phenomenon or event, whatever agrees with the interests and passions of this order, whatever procures pleasure is *good*, is the *wellbeing*, whatever opposes them and causes privation, suffering, pain, is *bad*, is *evil*. Nothing more fundamental, more indestructible than these sentiments, to satisfy which all the others concur. They may have been regulated and subordinated, but never extinguished. In all the regions of the earth, where their demands are not foreseen and satisfied, they reign supreme. In highly-civilised states, when they are outraged and forgotten, they explode, break into deeds of violence and crime; and the heap of fictions beneath which it was hoped to crush them collapses in a moment. The animal casts aside his human mask.

If in the vocabulary of the most cultivated tongues we were to seek for the words relating to these primeval passions or deriving their origin from these vital interests, half the language would be found to flow from that source.

On the second class depend the conceptions, at first anthropomorphic, then realistic, of the universe, in a word, religion and science. We know that the former first appeared and prevailed so long as ignorance outweighed curiosity. We know that the religions seizing on all interests, utilising all the passions, succeeded for thousands of years in distorting the intellect of which they had constituted themselves the instructors; lastly that, driven back step by step, and continually encroached upon by science, they still hold their ground in well-provisioned strongholds, where are sheltered their accomplices, the reactions, and whence they burst forth to overthrow all the social relations. It is the worst ailment that the childhood of mankind could have bequeathed to its riper years. But we have already described it too often to call for further comment here, more especially as we shall everywhere meet with its blood-stained traces.

Transposed in the intellectual order, pleasure and pain give rise to fresh distinctions. Whatever satisfies the understanding is held for *true*, is the *truth*; whatever disturbs the cerebral functions and contradicts reason is *false*. As experience alone could supply the criterion of truth, no conception has been more variable or inconstant than that of the true and the false, so long as it resulted merely from judgments whose rectification did not affect their accuracy. The province of reason is to co-ordinate ideas, not to establish certainty. From this uncertain view abstraction drew an absolute concept, which became one of the principal levers of thought and action. It became associated and confounded with the more concrete and less fallible sentiment of good and evil. The true was assimilated to the one, the false to the other. From this summary and premature parallelism arose a multiplicity of good and evil types, as imaginary and factitious as the relations introduced by anthropomorphism between man and the universe.

Between the two groups of physical and intellectual interests is found a category related to both, borrowing from them all its elements, and in its turn reacting on them. We shall call it *Art*. *Esthetics* apply to industry the anthropomorphic conceptions of the mind, and this is the legitimate domain of that anthropomor-

phism which is so disastrous to science. For is it not the proper function of art to fashion nature to the use and image of man, physical and moral? Man is the type to which she compares and reduces all combinations of form, colour, sound. But art does not operate exclusively on the immediate results of sensation, on the data supplied by our material interests; she shares in the operations of the understanding; she embraces the field of ideas and words inseparable from it, treating them like the material supplied by the outward world; as substances of a particular species, she moulds, manipulates, and animates them in accordance with the laws of the plastic and musical arts. Then she takes the name of rhetoric, of imagination, poetry. In the new world thus conjured by her, composition and style correspond to architecture; the trope to design, to sculpture, and painting; rhythm and cadence to harmony and melody. The intimate agreement of all the means of expression, producing the illusion of life, renders poetry the supreme manifestation of art, the final effort of her creative power.

Her empire is vast. Not only does she embrace the intermediate regions connecting nature with man, but she extends and radiates to the highest as to the humblest operations of the organism. Art regulates the motions of the body, refines the senses, even sharpens the taste and smell, adorns the person, beautifies dress, decorates arms and utensils. From her languages derive the variety of their forms and the softening of their sounds; and what limits can be assigned to her influence in co-ordinating thought, in logic, and science? To her, as we know only too well, the religions are indebted for their pomp; and those even which began by condemning, denying, distorting, degrading her, were not slow in rendering her their accomplice, appealing to her aid "in order to make amends for years of irreparable injury."

Like the physical and intellectual, the æsthetic passions have their criterion, which they apply to all objects, to all artistic productions, and which the others borrow from them. All that satisfies them is *beautiful*, all that offends is *ugly*. The *beautiful* and the *ugly* are the æsthetic equivalents of pleasure and pain; the world of art oscillates between these two poles; they are to art what the

true and the false are to knowledge, what good and evil are to the most comprehensive of man's relations. The proportion is the same; but between equation and identity there is a wide difference. Transferred to the domain of the other two, each of these concepts plays a subordinate part. From a complete assimilation of all, there could result nothing but an empty phraseology, formulas, for instance, such as "the beautiful is the splendour of truth," which make a parade of depth but are destitute of all philosophic value.

The great error of reason is that in the category of the absolute she has allowed to be indiscriminately included all the ideas furnished by experience; that she has forgotten, first of all, that relativity is the general character of all knowledge, and then that in this relativity itself there are various degrees. She has considered neither the organic conditions, nor those of time, place, climate, race, temperament. In a word, she has made herself independent of experience, which would have taught her that nothing has varied, nothing varies more than the æsthetic ideal, that the beautiful is the most relative of all concepts, its standard being liable to most modifications and exposed to the greatest uncertainty. Each age, each year, each people, each individual, has its own ideal. And why should we complain of this diversity, but for which Art would become no more than a commonplace industry? The pretended *necessary* idea of the beautiful in itself, of the unconditioned perfection, is chimerical, because it couples together irreconcilable terms.

Man, however, was still far removed from these subtleties when his relations with the universe awakened those first passions, which presided over the moral evolution. No sooner had he acquired the sentiment of good and evil, of true and false, of the beautiful and the ugly, than he applied it to his relations with his kindred.

Was it nature or interest that formed communities? It was both; for is not interest a *natural* necessity? There is no mystery in the familiar aphorism: "Man is a sociable animal." Others are so, through habit or occasionally. Fish swim in shoals, horses, deer, and sheep herd or flock together; wolves hunt in packs; the polypary, hive, anthill, beavers' village, republics of birds, are

societies. Lastly, the genetic instinct brings the most solitary animals periodically together, everywhere opening the series of moral acts. In the animal family, the jealous instincts of preservation and of property already as it were foreshadow the highest virtues, those which, analysed, strengthened, and occasionally weakened by reflection, are destined to become the ornament of social institutions, the theme of metaphysical vagaries; such are love, affection, the defence and protection of the feeble, courage and devotion.

The starting-point of the genetic passions has been the same for man as for other animals. Whatever differences may exist, do not seem to have always been to the credit of our forefathers. If we consult the recorded observations of travellers, or question the strange practices of societies arrested in their development, we shall find that those first forms of the human family, though doubtless extremely varied, were still very far from rising above the common level of animal life. The dove and his mate hatch their young alternately, outbid each other in nourishing them, teach them to fly. The tiger and tigress fondle and defend their whelps until strong enough to provide for themselves. In these respects man did not appear as their equal till after the foundation of the domestic hearth and the adoption of monogamy.

The genetic passion was developed in man in accordance with the interests suggested by the organism and its surroundings. If to the general conditions of life we add climate, food, security, leisure, nomad or settled state, racial or individual circumstances, the frequency and intensity of the prurient feeling, the numerical proportion of the sexes, the intellectual culture of each, the rapidity or slowness of growth in the child, the example of leaders, laws, and proscriptions, imposed and fixed by habit, language, and religion, we shall have all the elements of the family life, together with the causes that established, preserved, or modified them.

The starting-point was promiscuous intercourse, indulged in at certain definite times, the privilege of making love "in season and out of season" being the slow result of the æsthetic sentiment. There were as yet no permanent alliances, and if a thought was given to the issue it must have been on the mother's side alone.

Kissing is still unknown amongst certain savage tribes, and in their idiom there is no term expressive of love. Still they have developed the paternal sentiment, and the sexual relations are already subjected to a few regulations, sometimes of a severe character. But the old brutalities still break out even amongst the most cultured peoples, and must be taken into account in modern societies.

Nevertheless various necessities were not slow in affecting the relations, not only of man with woman and the child, but with his fellow-men. They were obliged to procure, and carefully to guard, the instruments of pleasure. Woman was a property to be defended, a common property when they associated or herded together, private when man, vanquisher of his rivals, had succeeded in possessing himself of one or more. It is probable that polygamy, polyandria, and monogamy existed simultaneously, according to the various casual disproportions or the parity of the sexes. To each of these states corresponded different habits, manners, and institutions. One of the strangest, from our modern point of view, is the *matrarchy* still prevailing amongst several savage peoples, and which takes an important place in the history of the origin of right. It has been especially studied by English and German jurists, and has been dealt with by Elie Reclus in the columns of the "*République Française*." It seems to have prevailed in Chaldaea and Eastern Europe; and, to judge from the traces it has left in their myths, in their customs, and even in Roman jurisprudence, the Aryans and Semites would seem to have found it established in the countries where they introduced the contrary principle of the *patrarchy*, or paternal authority.

The maternal authority takes us back to times and to a social state in which women were the collective property of the tribe. Woman was then the centre of the family, *maternity* the source of relationship, than which nothing was more natural or logical. "I am the son of Ulysses," said Telemachus; "my mother told me so." Paternity is an act of faith, maternity a constant fact; hence the first remains so uncertain that outside the wedded state the French code disallows all inquiry in the matter. In the absence

of legal presumption, the acknowledgment of the father alone constitutes its reality. The institutions based on the undeniable certainty of maternal filiation have been amended, but only in their secondary consequences, and supplemented by those flowing from the paternal right. But their foundations were much too solid to allow of their perishing. The Romans attempted to substitute for them the law of *agnation*, or consanguinity on the father's side; but they were still compelled to give its proper place to the maternal relation, and at present the two principles combined jointly regulate the delicate question of inheritance.

For several reasons paternity could not fail to assume the ascendancy over maternity. In the first place, man alone could contribute to the support at once of mother and child. Then the habit of sheltering from all attack the group formed round about him, and the precautions suggested by jealousy, ended by leaving him satisfied touching his paternity. At the same time comparison, the pride he felt in his choice, the household cares, transformed the genetic instinct to durable love for his helpmate or harem, and for their common offspring. But nothing can have tended to strengthen and hallow the conjugal union more than the slow growth of the human child. After twelve or fifteen years of joint and necessary cares the mutual attachment may well have become fixed by habit. Every fresh addition to the family was a fresh link in a chain that death alone now could sever, that affection at times prolonged to the death of the survivor.

The child is, and has ever been, the centre and pivot of the family; all the thoughts and efforts of the mother, and later on those of the father, had for their sole object the infant, whose very helplessness constituted its power. Long ages, and a slowly acquired faculty of reflection, were needed to establish its primordial and superior right. We shall see that in the family, as in the social organism, the gradual transformation of the concept of authority, has been the measure of a progress still far from completed. Just as the individual has been regarded as the property of the king, of the government or community of which he is a member, so the child began life as the property of the mother or the father, their most

valued possession, doubtless their treasure, but still their property. The father found himself invested with the right of accepting or disowning, of *exposing*, even of killing it, *à fortiori*, of moulding it after his fashion, according to his idea of the good, the beautiful, and the true. This otherwise inevitable illusion has left very obvious traces in our laws and customs, side by side with tendencies and acts proceeding from the opposite principle.

The beauty of the familiar axiom, *Maxima debetur puero reverentia*, consists in the just intuition of the place to which the child is entitled in the family. But he is entitled not only to *respect*, but also to gratitude and to the recognition of his rights. In his regard there exist duties only, while those devolving on him are purely reciprocal and indirect. The right of the parents flows from the fulfilment of their duty; the paternal authority has its only source, rule, and limit in the present and future interest, the right of the child, to which it is subordinate. This truth in no way weakens the useful obedience of the child to his natural guides; it is not opposed to the covenants of the parents, or to the necessities entailed by the inequality of their intellectual or pecuniary resources; but it rules and estimates them at their just value. It is the foundation of a new right, which has terrors for those only who are opposed to compulsory education. 'Liberty in a constantly increasing ratio exists for the citizen, but not for the father. He lost it the moment he gave life to a being which had not sought it of him.'

Without dwelling specially on them, it is easy to understand how manifold must be the moral and social consequences of the relations instituted by the family between husband and wife, between children and their parents, brothers and sisters, brothers and sisters-in-law, sons, daughters, fathers and mothers-in-law, uncles and nephews, cousins of all degrees of consanguinity and affinity. In the patriarchal or monogamous family the terms expressive of these relations date from the highest antiquity. Aryan philology shows us in the brother the *bearer* (*bhrâtr*, from root *bhar* = to bear), that is, the support of the sister; in the daughter, the young milk-maid (*duhitr*, from root *duh* = to tug, to milk); in the father, the

feeder (*pitr*, from root *pd*=to feed, to nourish, as in *pasco*, pasture, &c.); in the mother, the producer (*mâtr*, from root *mâ*=to produce, as in *mûteria*, &c.). Other synonymous names express other qualities and other functions, and bear witness to the progress of analysis as applied to facts and ideas. The sentiment of the good, the beautiful, and the true becomes intensified and more varied, while the egoistic and one-sided instinct is doubled and multiplied by reciprocity. The individual shares by reaction in the emotions, pleasures, sorrows of the beings in whom his person and his property seem enlarged; rejoicing and suffering for them, he makes them sharers also in his joys and sorrows. The interest of all resides in the harmony of the individual interests. Thus arises, by comparison, compensation, and union, that *altruism* the inheritance of which imparts to man a second nature, one that does not suppress, but clothes, adorns, and fructifies the first.

But solidarity must not be regarded as a simple concept, flowing directly from a primitive and irreducible instinct. It presupposes a state of culture high enough for reflection to detach man from himself. It regards him objectively as a unit in a group, all the members of which have either different or analogous wants, but all equally worthy of consideration, since reason no longer operates exclusively on the comparative notions of individual good and evil, but on the relation of the good and evil of one with those of another and of several others akin to him. From this mental operation springs the idea of momentary or habitual sacrifice of one good in favour of another, the preference of a distant and higher to an immediate and lesser good. According as the mental horizon is widened, as the incentives of desire and will increase in number, pleasure, like an inexhaustible Proteus, changes its form, becomes more subtle, with infinite rapidity. It lurks even in a sorrow, behind a series of woes and evils.

In the more advanced civilisations even commonplace and enfeebled individuals will perform without reflection acts which presuppose a long mental elaboration. The reason is because the process has been shortened by education and inherited capacity; it has already been worked out, and its results have been secured,

becoming for certain temperaments peremptory motives of action. Then thinkers more subtle than profound discover a want of harmony between the act and the individual or immediate interest. Were they to seek the true cause they would perceive that the interest has changed, not its nature, but its object; they would see how and by what gradations it has passed from the individual to the reciprocal, from the near to the remote, nay more, from the physical to the intellectual.

The first essays of the mind, its apparent inconsistency in the appreciation of the good and evil not directly affecting the organic want, are nowhere so clearly and naturally revealed as in the family relations and the variety of practices associated with them. Every age, every race, every man, forms a different conception of the office and condition of the child (this we have already seen), of the wife, of the husband, of the father, of old age. Nevertheless, the savage who buries his enfeebled or aged father to the shoulders and piously strikes off his head at a blow, or who devours some old woman of the tribe when hunger presses, the Greek or the Roman who exposes his new-born son, the Spartan who throws his deformed offspring over the precipice, the Persian fire-worshipper or the Egyptian Pharaoh who wedds his sister, the modern citizen who slays his unfaithful wife, all obey one and the same interest, more or less correctly interpreted. And there have been, there still exist, communities in which these acts were and are lawful and innocent.

Through how many states and legal positions has not the wife had to pass, positions always determined by the forms of the family, by the æsthetic sentiment, general culture, individual caprice? Polygamy converts her into an instrument of pleasure, the sport of a master, the enemy of rivals mutually detesting each other; monogamy raises her to a sort of complimentary equality, to the position of mistress of the house, as the "better half" of man, secures to her a share in the management, without, however, sparing her the annoyances of seclusion, the humiliation of a rivalry she is feign to shut her eyes at. Her infidelities are criminal and meet with punishment, while those of the husband are committed with im-

punity. In any case this monogamous state, which is the necessary condition of the true family, cannot destroy, but only reconcile the facts of nature with those of the social surroundings.

Woman cannot get rid of her sex, which no one dreams of regretting or making a ground of complaint. Her sex determines her destiny, measures her rights and her duties according to her functions, makes at once her weakness and her strength. And, as we know, this strength is great, conferring on her a power which few men, perhaps, can for any length of time escape from. The aphorism, "Show me the women," is not applicable to crime and intrigue alone; for there are scarcely any arts that have not been inspired by her. Apart from the necessary and pleasant authority belonging to her as mistress of the hearth, mother, confidante, consoler, she derives from her physical weakness a strength often even formidable, but which has been a marvellous civilising agent; for it was this weakness that gave birth to pity, to unselfish love. Consider lastly all that the arts owe to love and beauty, and it will be evident how great has been the share of woman in establishing the supremacy of man. Accordingly we find that the progress of civilisation has ever been in the direct ratio of the place awarded by laws and usages to woman in society.

Woman has especially developed the emotional sentiments and the ideas flowing from them. Not that her brain is not capable of all intellectual operations, for thousands of examples have shown her aptitude for literature, the arts, industries, politics, even the sciences; and a number of American, English, French, Russian female students at present successfully undergo tests hitherto reserved for men. But without asking whether the average inferiority of the female encephalon in volume and weight is a natural and sexual character, or proceeds rather from a long arrest of culture, it is impossible to forget the fundamental differences that assign to each sex its respective part—public life to the one, private to the other.

If in certain respects woman is a member of the state, a citizen, owner of property, trader, payer of taxes (and on this ground she is abundantly justified in complaining of the laws that prolong her

minority), her functions, as determined by her physical, moral, and intellectual nature, still exclude her from a personal, active, and continuous participation in the great acts of public life.⁶ Her sex and its accompanying inconveniences can no more be overlooked than can her charms and inherent coquetry. The American reformers, the amiable John Stuart Mill, who claim for our sisters the right of suffrage and direct representation, have not sufficiently studied their Aristophanes.

In any case, priestcraft is still formidable enough without lending it the support of half the adult community. By her emotional, impulsive nature, woman is subject to superstition, to credulity, thoughtless enthusiasm; factors that have been, or ought to be, banished from the political platform. When the progress of time shall have removed these causes of intellectual disorder and thralldom, it will be possible, not indeed to encourage, but to tolerate individual exceptions to the general practice. Freedom is the final solution of all social problems, but a freedom neither premature in itself nor at variance with the common interests, nor, least of all, opposed to the nature of things.

We have just alluded to the constant and profitable support that religion and its ministers have ever found in woman—woman, who, in order to perpetuate the illusions of primordial ignorance, had but to obey the unreflecting promptings of her joys and griefs. Since it was settled that the universe was governed by gods, that these gods, being good, gave life, that this life being good, must needs be continued after death by the givers, how easy was it for the "medicine man" to extort from woman petitions, *substantial* and *lavish* acts of thanksgiving, and by the education of the child to prolong the childhood of man! And if the religions were able ingeniously to discover the opportunities of a profitable intermeddling in such events as "births, marriages, and deaths," and the anniversaries of important occurrences, the ideas suggested by the various incidents of the family life furnished the myths in their turn with a valuable contingent of metaphors and false reasonings. From the human proceed the divine families, the trinities, the loves of the deities and mortals, the incarnations.

Reproduction deified, represented on the altars, the identification of fire with the vital spark, the paternity of the world attributed to the gods, the love of the Eternal Father for his human family, are religious and metaphysical consequences of the family. These transitions from the real to the ideal, adding their confused veils to the already entangled warp of the imaginary truths, produced an endless complication in the inextricable tissue of errors woven round the human reason. Thus, it was that while developing the faculties, all interests, all acts, introduced into the intellectual operations sources of obliquity which in their turn reacted on the meaning assigned to the concepts of the good, the beautiful, and the true. *Progeniem vitiosorem!* A constant, simultaneous, and reciprocal procession of judgments distorted by the very elements that they had vitiated!

Interest and the genetic passion, the relations of man with woman and the child, originated emotional reality. From the relations of man with man, with groups of men, of the individual with the community, will be developed the morality of reason. The first derives the notions of good and evil from a small number of imperious sentiments which override deliberation and will; the second, enlightened by the comparison of infinitely more numerous and varied springs of action, arrives at conclusions less directly necessitated by the organic and animal conditions. Both equally appeal to all the faculties and forms of human activity; but the latter, passing through all the phases of intellectual elaboration, strips its concepts of their sensuous elements. In the abstract world which it creates, it no longer operates on other than relations of quantity considered in themselves. Lastly, it extracts from them, the mean and the residuum, and above the good, the true, and the beautiful, above love and devotion, it raises the supreme beacon and law of all actions, the *just*.

But the just itself is not exempt from variations and obscurations. So far from lighting "every man that cometh into the world," the "Light" itself has long remained obfuscated, clouded by the vapours of the organism and senses, of the emotions and religions; nay, it flows from and is fed by these very vapours

and impure combinations. Its purification is the work of ages, of experience, and genius. Before swaying and controlling all the other passions, that of justice has itself undergone their contact and influence. Nay, it cannot and ought not to destroy them, under pain of sacrificing at once its principle, its instruments, and its end. The function of rational morality is to distribute labour, to assign to each natural and acquired interest its proper place, a position compatible with a general harmony called happiness. It must forget neither the body, sex, age, the individual, nor the surroundings; no source or species of pain or pleasure can be overlooked. And how could it be otherwise, seeing that this reason has not sprung fully equipped from a previously existing reason? It has not been developed before, beyond, or independently of, emotional morality. Both were born together, together they made their first tentative essays and stammerings, grew up, exchanged their ailments, mutually borrowed and suggested ideas, at times twin enemies clashing violently together, but still condemned to a common life, and to the strangest compromises. One presides over the family, the other over society; but they are reciprocally complementary one of the other, the latter by introducing the social equilibrium in the family relations, the former by converting society into a large family, and thus completing the general scheme, to equality, or the formula of justice, superadding brotherhood, the expansion of love. Liberty, however, the general and first condition, belongs to the individual, being, as we have seen, the free exercise of the instruments tending to the satisfaction of the natural and acquired wants.

Thus, while possessing himself of woman and the world man came face to face with his fellow-man, applying the same means to the same end. *Homo homini lupus*, one man is as a wolf to another, said Hobbes. This absolute formula has been questioned; nevertheless it is barred by no limitation, and has obviously been the regulator of the first social relations. Whether man began by isolation, by the family, or the herd, the individual, the couple, or the tribe must have found itself in the presence of a rival being or group of beings. Whether he hunted alone or in concert, as does

the wolf to this day, he must necessarily have fought for or shared the prey. In well-stocked districts, or when the quarry was of large size, a general profusion may have suggested a precarious and savage concert. Account must also be taken of the brutal impulse of want urging to the violent seizure of his neighbour's property, at first, not because his neighbour's, but because near to hand; then, through the instinct of acquisition, preservation, foresight; lastly, through envy, the result of a momentary comparison. And when we say envy, we say hatred, anger, overt or covert attack, stratagem being merely the substitute for strength. Observe also that the possession of woman, of land, of the cave, gave rise to like passions and acts.

The vanquished was either slain, occasionally devoured, or taken, in the latter case entering as a slave into the possession of the conqueror, or else he escaped and went in search of some fresh weapon, aid, or ally. Then was renewed the struggle, often protracted long after the disappearance of the original motive or first antagonists. Vengeances and enmities, all the more tenacious that their cause was forgotten, were transmitted from associate to associate, from father to son, from the family and home to their living and yet unborn members. In this period of violence, from strife and warfare are already seen to grow the first contracts, implied or expressed by engagements, surrounded by sanctions, solemnised by gestures and pledged words, by the dance, the song, religious rites and monuments. The obligation thence arising for the allies, and even for master and slave, was doubtless precarious and subordinated to circumstances and unforeseen interests, and when no longer able to be maintained was often broken by the very force which had been its origin and object. The aim of the whole mental operation was from the force residing in the two contracting parties to establish a common bond, the abstract idea of a bond. According as this idea became realised, the contract became personified as a law; the law, preserved by judges, applied by their ministers, awarded punishment and compensation as a recognised arbitrator. Submission to the law thus constituted a general interest superior to the individual interest, which had been

reconciled with and merged in it. For a contact of interests the laws substituted an agreement and gradation of interests.

The more permanently individual interests become merged in a common interest and in the law expressing it, the less precarious and shifting becomes the law itself. In all practices, in all decalogues and codes, there will be found such constant laws which have varied only in the interpretation and sanction. They are summed up in the brief formula—*summi cuique*. They protect each member of the community in the possession of his property; that is to say, his life, wife, herds, whatever he holds from nature, his family, or himself, whatever he has acquired with the consent of the others, or without encroaching on their interests, limited by his own. The laws thus correspond, though to a limited extent, to certain immediate and absolute necessities, summarily defined by the most elementary experience, antecedently to all analysis and reflection.

Yet what meaningless praise and admiration have been lavished on these rudiments of morality! Gifts of the gods, truths engraved on every conscience, categorical imperatives! But the precepts summarising them are so faintly engraved on every conscience that in a hundred places and a hundred epochs it has been, and still is, lawful and honourable to kill and plunder *the stranger*! An emotional sentiment, that of benevolence, *charitas generis humani*, suggested by our common nature, developed by the family relations, had first to be added to the provisions of individual interest before the guarantees, reserved at first for the horde, the tribe, the community, the confederacy, the nation, and the race, could be extended to all mankind, and then how slowly and inadequately!

The conception of humanity, so fruitful in itself, is relatively very modern; and how many violations the principle still suffers! What value had the slave's life for a Roman citizen, a Red Skin's for the Spaniard, a Negro's for the White man, a Polynesian's for the conqueror from the West, a Turk's for a Christian, a Jew's or a Huguenot's for a Catholic? In our own days, or but yesterday, have not civilised soldiers, educated, instructed, even pious officers, who would not maltreat a captive enemy, have they not, without a

shadow of scruple, pitilessly, relentlessly shot down (disarmed and vanquished wretches, kinsmen, and fellow-citizens! Beyond the social pale, outlawed! All laws without exception proceed from a contract. Obligation, as implied by the term, supposes parties mutually bound. Before society, no moral code!

Before society, were it constituted but by two individuals, there existed nothing but wants. Interest and force were the sole measure of actions. There was neither virtue nor crime. After society, and through it, there exist rights.

Every society is a contract, expressed or implied, instinctive or conscious, in virtue of which the individual yields, in order to retain, to acquire. This definition is applicable alike to the most limited and special, as well as to the most extensive and vaguest societies. In all of them the individual renounces certain powers and possessions with a view to the preservation of what remains and the acquisition of others. What he retains, in relation to what is retained by each of his fellows, constitutes his natural, what he acquires, his civil rights; what he contributes to the common stock, forming the public right, whose function is to safeguard the private rights, whether civil or natural. But for this public right, which is the knot of the compact, the natural or acquired rights would be nothing more than wants.

The sanction of a right, or group of rights, is limited by a similar, equivalent, or superior right. All right is relative, and from this relativity result obligation, reciprocity, duty. Hence all right involves a duty—either negative, respect and obedience; or positive, co-operation and devotion; and the fulfilment of duty creates in its turn a fresh right and obligation, gratitude, good-will. Who infringes on a right injures all who possess it or lay claim to it; who exercises it for himself confirms it for all. Society thus becomes an ideal organism, whose faculties and springs of action are rights and duties, whose regulating and guiding principle is public right. From the exact correspondence of rights and duties result social harmony, the safeguarding and maintenance of which devolves on public right. Contemplating the aggregate of rights and duties, and abstracting from all individual peculiarities, categories, and

subdivisions, the mind deduces a general concept, to which, as to a general type, reason refers all human actions. The conformity of the action with right is called justice. But we now know what to think of that pretended right and justice, which cannot exist in the concept since it is wanting in the facts whence the concept is drawn. It is a mere fiction, possessed of but a momentary advantage. Should it cease ever so little to correspond to the reality, it consigns the individual and society to a moral confusion in which all notions of right and duty become engulfed. In opposition to it there rises a fresh conception of justice, which in its turn becomes equally invariable, equally liable to be modified. The former resists, upheld and imposed by men for whom it suffices; the latter, pressed hard, struggles, writhes, and, overcoming all resistance with a final effort, will at times crush, destroy, sweep away the work of its rival. And as all mental conflicts find expression in words and deeds, sarcasm and scoffing burst through all restraint, and blood flows over the ruins of a self-condemned social order. History is made up of such revolutions.

We are doubtless in the presence of a progressive pacification of the habitable world; or rather, we foresee it. The interchange of ideas between fixed societies tends to establish a common standard, a general morality, which all men and all peoples will some day realise. Once conceived, realised in the mind, this final type, attaining the absolute, becomes a potent lever of the will and of action, a criterion which we may apply to the present, and even to the past. The mistake consists in making it the starting-point of the moral evolution, whence it flows, thus making it the cause of the whole intellectual elaboration, of which it is the anticipated result and conclusion. This error belongs to all times, and has been a powerful refuge of metaphysical and religious aberrations. To it Providence is indebted for the brightest gem in its crown.

Absolute justice, which does not exist and never has existed even as a definite conception, has now withdrawn, with omniscience and omnipotence, to the bosom of the Deity. It has become one of the entities, a final source of appeal for all human and defective justices here below. Nay, more; its intercession is implored

against inevitable evils, against floodings and volcanic eruptions, epidemics, shipwrecks, and death. To it are attributed unavoidable fatalities. It is accused of somnolence and neglect, its very injustice is complained of, and it is anathematised by way of reducing it to better sentiments! Yet how is it possible to imagine an unchangeable, eternal justice, which permits wrongs in the present in order to repair them in the future, on behalf of beings who have no future? And then come the postulates of reason, the necessity of a future life, by a vicious circle in its turn proving the existence of a veracious and just God! We profess with tears our entire confidence in, and resignation to, the unfathomable decrees of Providence, provided only an occasional little miracle come to reassure its votaries. Wax tapers are lit, incense burned, showers of gold poured into the vessels of the Danaïdes, the soul soars aloft on the wings of prayer; but Justice on high remains indifferent, makes no sign. If we only knew the reason!

Poor dupes! Justice is in your own hands, it is in your own power, in the concept derived by you from the relations between your rights and duties, from the effects of your acts; it lies in you to do it. Your wailings, the exaggerated sentiment of your momentary or absolute helplessness, your appeals to supreme justice against your own progressive justice, have for their consequence the most deceptive and idle of all the virtues, resignation—a euphuistic name for despair, for apathy, a feeling turned to profitable account by all the pseudo-religious authorities, by all earthly and real tyrannies. If supreme justice does all, let it be! But you belie your own syllogism, you take action, you go forward in spite of yourselves. The necessity of acquired wants, the hope of anticipated blessings direct your steps, urging you towards a better state, towards the reality of justice. . .

But, argue some, true or false, the belief in future awards is useful and salutary; it is consoling to the wretched. But the child also is consoled when you promise it the moon, which its outstretched hands fail to reach; nay, it is less deceived, for the moon at least exists. Still let us apply this consolation to the greater evils of life—to the loss of a son, of a mother, of a father,

wife, friend, of a limb, and see what it is worth. Who is deceived by it? For, are you not positively certain that, of those endeared features, of that mind reflecting your very self, of that heart which thrilled at your name, of that voice whose tones pierced you to the soul, of that hand which traced your thoughts, of that unfortunate leg torn from you by the cannon-ball or the gangrene, nothing will have remained a year hence but a few bones and some fertilising dust? Is personality separable from the life and form constituting it? How is it to be recognised? The doctrine of the bodily resurrection has at least the merit of logical consistency, reducing it *ad absurdum*. But who now believes in such an extravagance, even amongst those that profess to teach it? "Rachel will not be comforted, for they are not." Such is the honest and sincere expression of grief. In the presence of death true consolation consists in refusing to be consoled, in cherishing the living memory of the lost ones. And then time will bring its remedy only too soon. As for the passing ills of life, and even more bitter, but reparable griefs, they admit of but two real sources of consolation—sympathy and especially personal effort.

"But when the evil is irreparable, when after every effort we fail to see anything but a hopeless and protracted fall into an abyss of woes, what remains but to die?" Doubtless suicide is a radical remedy against suffering and life, against pain and pleasure alike. But the love of life still prevails! Hence, however numerous may be the more or less voluntary deaths determined by frenzy or fever, or resulting from calmer deliberation, mankind continues to increase and to act, impelled by the imperious power of want, interest, and passion.

But, it may be urged, to withdraw human actions (not to dwell further on the inevitable in the natural order) from the supreme judgment of that infallible arbitrator who yet slumbers at times (*aliquando bonus dormitat Homerus*), would surely deprive moral obligation of its sanction! By no means, for moral obligation has two sanctions, and two only; one social—pains and penalties; the other personal—remorse and, in its absence, dread. We may avoid the one, but cannot escape from the other.

Of penalties we shall speak farther on ; here we may define remorse. Whether deadened or quickened, according to the degree of individual culture, remorse is at once both more or less rational and emotional, the sentiment of a moral degradation. The guilty deed does not merely strike the victim, but turns on the criminal, besetting his memory. It pictures to him the wrong he has done, and against which he is henceforth helpless ; the right he can no longer appeal to, since he has outraged it, but which society alone may still secure to him in virtue of a still higher concept. His reason brands him with infamy ; and reason failing, mere instinct alone will suffice to hound him down like an outcast. Remorse finds no healing balm, except in the reparation of the wrong inflicted ; and when this is impossible, in regret or repentance. The self-imposed expiation, and that which society proportions to the degree of guilt or of evil flowing from it, become a sort of compensation, intended to rescue the guilty one both from his own remorse and from the vengeance of his victim. This is at least a useful fiction, when it helps to raise up fallen man ; but it seldom attains its end. The countless abuses involved in the application and determination of the penalties are recorded on every page of our religious and civil codes.

One effect of the obligation which we accept, or even merely recognise, is responsibility ; and, in point of fact, every man, aware of the conditions of the social pact, becomes necessarily responsible for ~~their~~ wilful non-observance. It is because he is not always aware of such conditions, because he is often either constitutionally or mentally incapable of knowing, understanding, and respecting them, or at least powerless to withdraw from the society which accepts them, or from the anti-social classes predisposed to outrage them—it is, we say, for all these reasons that the tribunals and judges allow of degrees both in the responsibility and the sentence—in a word, extenuating and aggravating circumstances. The appreciation of the responsibility further varies according to the times, usages, and judges. The less society is enlightened, the less the authorities representing it reflect on their own share of responsibility in the acts of their agents, the more it overrates the

responsibility of the accused. The more it takes cognisance of the duties imposed on it by its controlling and educating functions, the more will the community make allowance for the necessities weighing on the guilty, the more will it feel inclined to regard the crime as an error of judgment and a moral obliquity of vision. But, however disposed towards a reasonable indulgence, it cannot go the length, first of all, of endangering the social interests, and then overruling a natural law lying at the bottom of the whole question; every act involves consequences advantageous, or the opposite, to the agent. Of this law, responsibility is the social expression, the transposition, at first crude when interpreted by the simple *lectulionis*, then more refined and graduated, when it admits the principle of analysis in the conditions determining the act.

One fails, however, to see what the absolute liberty and the absolute moral law of the metaphysicians have to do with this question of responsibility, the solution of which they in no way affect. We have seen that deliberation implies a hesitation between different motives of action, a conscious choice whence follows a relative freedom, or what language calls such, in the volition and the act. The act is none the less necessitated, only it is so with full knowledge of the circumstances; and it is this knowledge that forms the starting-point of responsibility. In its investigations, society has no occasion to go farther back, nor need it always go so far back, because it contemplates the acts of its members only from the standpoint, and in the urgent and immediate interest, of the social relations. Only on society is incumbent the duty of procuring for the individual this conscious choice, that knowledge of the circumstances according to which it has to estimate guilt and responsibility, sentiments and concepts flowing from the social state, apart from which they are valueless and meaningless.

We have pointed out beforehand and incidentally dwelt upon the part played by the emotional (genetic and family) sentiments in the constitution of societies, in the formation of the ideas, and performance of the acts conforming or opposed to the social pact. They are everywhere present, either as elements, or auxiliaries, or

correctives of rational ideas and actions, quickening and fertilising them. Through them the critical and rigid conception of justice is transformed to a living passion, the noblest of all in its abstract sublimity, the gentlest when tempered by sympathy and goodwill.

But though a constant co-operator with rational, emotional morality still pursues its own special work and end; its ideal is the family, its end the assimilation of society to the family; into the social relations it introduces all shades and varieties of love. This conception has imparted their potency to the religions, and especially to Christianity, not that it is peculiarly theirs, but because they skilfully appropriated it, mostly turning it to profitable account by distorting its meaning. Christianity, as we know, employed it in fact to the dissolution of the ancient social state, and virtually to the destruction of all society, only it was fain to make some allowance for reason and civil order. To Christianity is due the baneful confusion between the laws regulating the affections and those formulated by justice. While struggling against the contagion, philosophy has not been able to escape from it, and still bears its traces. To the religions it is indebted for its extravagances respecting the Eternal, universal love, the goodness of God, creator and ordinator of a universe in which this love and this goodness have for their essential conditions living organisms, the sexual and social relations.

But leaving aside this cacology, in the social family justice retains the supreme control, while the groups are formed and organised, contacts softened by love, at once counsellor and servant, consoler and intercessor. The affinities determined by it correspond to the various degrees of kinship, but often with more intensity in the sentiments, more energy and perseverance in the will and actions.

The friend is our brother, but one by choice. Aristotle, Cicero, and all the moralists have rivalled each other in their praise of the pure delights of friendship; but when Aristotle converted it into the foundation of societies, he somewhat enlarged the meaning of the term. Friendship admits sufficient variety and gradations, from the friendship of the heart, to that of the mind, without

reducing it to mere benevolence ; it excludes all mercenary or trivial elements.

The minor or possible relations are grouped in collateral series, descending from constant or intermittent benevolence to that vague lukewarmness verging on indifference. But even in this lowest state there are degrees which never reach the absolute.

The native hamlet, the town, the province, the country, the fatherland cause a whole gamut of filial sentiments to vibrate. Here the law of affection is based on proximity, love decreasing with the distance. But reason intervenes. With the development of intelligence and enlargement of the horizon, according as the native land becomes realised and ennobled by historic traditions, increase of territory, of the social community, of literary and scientific influences, there rises and grows an ideal image, its footsteps in the past, its face towards the future, the storehouse of glorious memories, source of all blessings, everlasting object of a grand worship. To it we owe our name, our speech, our rank and office in the world. It becomes our very mother, the most intimate part of ourselves, whose woes cause our tears to flow, whose humiliations make our blood boil, whom we are ever ready to screen with our bodies. What manly jealousies, joys and griefs, wrath and enthusiasm, are centred in the love of country !

And now appears a venerable figure, old and ever young—humanity ! Its origin lost in the night of ages, it outlives all its children, and will perish only with the last mortal. Ever present, it envelopes us, but its image is so vast that it remains indefinite, a concept that cannot be personified. The affection we pledge to it, and of which Auguste Comte would have made a religion, is a shifting compromise between love and reason, a sentiment most frequently confounded with philanthropy, and displaying itself in the presence of the suffering of our fellow-creatures.

But where then is love properly so called ? It must be sought in the midst of that society which dwells within the cranium, which works and swarms in the busy hive of the gray cortical membrane of the brain. Here it is that man, *homo sapiens*, chooses and cherishes his mistress, his companion, his consort ; a guide who

at times beguiles, often comforts, but never forsakes him. Such is thought, which is also his daughter. The scientific, literary, political thought, the invention followed up to a successful issue, giving a glimpse of future fame, challenges all his devotion, his very life and death. Friendship and thought, the simplest phenomenon and the most complex fact of the moral and rational evolution, are alone capable of outweighing the love of country. When these three rivals combine together, the ideal of human nature is realised.

This sublimation of love, which vivifies an abstraction, the ultimate residue of the cerebral elaboration, is the most astonishing triumph of the emotional sentiment. Born of the animal genetic want simultaneously with the evolution of reason from the animal organic interest, it has followed it step by step in its upward course, at the very summit of their joint work kindling the noblest and most efficacious of all the passions—the love of thought!

§ 2.—*Legislation and the Criminal Code.*

The contacts of every order and every description affecting the organism, the concessions resulting from them, the wants and interests they give rise to, have, by determining the cerebral activity, developed the whole intellectual and moral life.

Under the combined influence of the emotional sentiments derived from the sexual instinct, and of the rational concepts drawn by successive abstraction from the relations of man to man, societies have, each according to the form imposed by race, place, and time, evolved the rights and duties assigned to their members, determining them by their mutual limitations—rights and duties, natural and civil, when dealing with the relations of individuals to each other; public, when flowing from the relations between the individual and the community. Societies have also conceived and in various ways guaranteed the rights and duties arising either from their hostile, neutral, or friendly relations with other societies, or from the relations of their members with the members of those neighbouring or more distant societies. It was necessary to consider the object and method of all these relations, private, public,

international, internal, foreign, the facts, professions, services, determining and characterising them; for are they not each in their turn and simultaneously commercial, industrial, military, rural, urban, territorial, maritime? It was at the same time necessary to insure the exercise of all these rights and the performance of all these duties by means of regulations supported by a penal sanction. Nor was this all. According as analysis and synthesis elucidated both the nature and relative value of the rights, duties, ordinances bearing on each of these categories, and the relations of these categories to each other, it became necessary to ordinate their elements and the aggregates in accordance with a general and abstract conception of right.

But this work is not finished even in theory, and never can be, for it is even more complex than it is vast, more shifting than complex. It is full of stops and relapses, of real and questionable progress. These relations and these interests mutually begetting each other, harmonising or conflicting, are very far from pursuing a uniform and parallel line of progress, and the idea which summarises them is itself condemned to the same irregular development, at times confused, at times clear enough, nearly completed in one or other of its aspects, elsewhere no more than roughly outlined. How then can the critical concept of the good, the useful, the just, be final? Here the illusion arises from the circumstance that we judge all previous forms according to the last, according to the test that our intelligence has realised or foreseen, and are thus liable to regard them as deviations from a superior principle. This view has its practical advantages; it may and ought to preserve us from disastrous returns to institutions incompatible with the present or future social state, and which, on this ground, we have every right to condemn, and, if needs be, assail. But such a view is inapplicable to the history of right. Here the error of to-day was the accepted truth of yesterday.

We shall look in vain, not merely for any legal disposition, but for any of those juridical principles so thoughtlessly credited to Moses, which do not undergo modifications, and do not still vary in their form, their spirit, or their interpretation. Take these two precepts,

which may be accepted as fundamental: "Thou shalt not kill; Thou shalt not steal," and consider the endless restrictions they have been subjected to by permanent necessities, such as legitimate defence and the penal code; temporary, such as war, duelling, adultery on the part of the wife, paternal authority, political interest. Consider the countless developments and corollaries that have been engrafted on them by a more comprehensive conception of life and property, by the progress of public right, international right, the right of nations, by everything comprised in the two words *Habeas Corpus*. By *corpus* is understood not merely the body with all its members and the free play of all its organs, the freedom of going and coming at pleasure, but also the freedom of work, of thought, of conscience, of speech, association, meeting together; in short, political freedom. All this it is that has to be protected from violence, from robbery, and murder; and this again liable to restrictions, to extensions, and conditions, on which opinions and practice differ.

The confusion is intensified by the partial or total disagreement of the legislations with the ~~various~~ ^{various} ~~peoples~~ ^{peoples}. Fixed by oral or written formularies, by habit, by the interest of the classes who have decreed them to their own advantage, these codes oppose to the aspirations of fresh generations an inert force not incompatible with the paroxysms of conservative frenzy. They retreat and advance only step by step, and seldom as far as is needed. Their enforced progress already lags behind. And if this is the case in the societies better organised for communicating with the centre by means of frequently renewed electoral representations, and other impulses transmitted from every point comprised within the limits of the state, how much more so in badly-constituted societies, condemned to a state of incoherence by the subdivisions of territory and government, or stifled by a hierarchy of immemorial privileged classes, or else reduced to a dead level by the oppressive tyranny of absolute and hereditary monarchies.

This slow progress of legislative evolution is at times an evil, often a good, but in any case inevitable. Have we not occasionally felt astonished on reading the clause with which the text of new

enactments usually concludes: "And such and such laws are herewith abolished, except in such of their dispositions as are not opposed to the present law?" Here is, in truth, a formula at once dangerous and pregnant with sophistical interpretations. Yet it has been wrongly adopted merely to save the reformer the trouble of transcribing the old articles that may and ought to be preserved. A total and abrupt change might bring about a convulsion in the social relations, might endanger the interests legitimately created by the previous law. This is also the reason why new laws have no retrospective force whenever their action would infringe on vested interests. At times of regular progress legislative reforms must needs proceed by way of amendments. The most thorough and radical revolutions themselves, those which aim at the suppression of an entire factitious social order at one stroke, can scarcely escape from the same necessity. Their codes are drawn up by men imbued with the spirit of the old laws, for a people that has lived and still lives under their empire, whose habits and usages have been fashioned by them. Accordingly we cannot be surprised to meet, even in the least imperfect modern legislation, far too many traces of the defunct *régimes*. The French Code, for instance, is composed of Roman and common right; that is, a combination of the Roman *jus* with local usages. More than one echo of feudal times might easily be found, especially in the system of indirect contributions, so dear to financiers of the old school, but so vexatious to the citizens, so corrupting for the trader. Although professing the principle of equality, this code also gives a preponderating place to the pretended principle of authority, which has superseded the old divine right. Lastly, notwithstanding that worldly spirit so offensive to the clerical party and to the defenders of the Papal *syllabus*, it remains Christian and metaphysical in its theories of pains and penalties.

The reader will not look here for a history of right; it is a subject which would fill a much larger work than the present. We shall pass over the right of nations—which of the primordial hostility retains only certain vestiges, destined soon to disappear—and international right, whose otherwise really considerable progress

must for a long time continue to be hampered in Europe by Pan-Teutonism and Pan-Slavism. In civil and penal right we shall merely point out the shortcomings, the excesses, and especially the doctrinal errors disfiguring them.

By effacing the last traces of slavery and castes, by rescuing real property from the bonds of serfdom and feudal vassalage, the French Revolution made all men free and equal before the law. This was an immense benefit, which has not yet been extended to all civilised peoples, and which of itself alone claims our eternal gratitude. It is for the legists to still further improve, where desirable, the French statutes affecting the person and the civil state. But no one can fail to recognise the wisdom and substantial character of the guarantees found in this code for those two primary conditions of individual and social security.

The relations of individuals to individuals, contracts, quasi-contracts, and the obligations resulting from them are extremely complex matters, and subject to numerous changes. But here the legislator is guided by custom. He had nextly to codify the usages, while retrenching those no longer in accordance with the principle of equality; thus conveniently regulating bequests, wills, exchanges, sales, rents, loans, securities, without interfering with the freedom of private agreements. The contract is a covenant between two or more, who may introduce any clause not foreseen by the code, on condition of not injuring the rights of others, and not committing any offence against the penal laws.

Besides the simple individual, there exist individual groups, either by nature, by law, or contract. In the first class are comprised, on different grounds, the family, the commune or municipality, the department or county, the state itself; in the second, commercial and industrial companies, political and religious associations, like other individuals capable of acquiring, exchanging, selling, and contracting all sorts of obligations. In fact, they exist in virtue of the individual liberty, and are, like the others, entitled to the protection and security of the law. But the general society, within which they form special societies, can on certain conditions only concede to them a legal existence, a civil status, and

personal statute. Of these conditions the first is publicity. The individuals brought within their contact and action must necessarily be informed of their origin, and of the covenants or circumstances constituting or modifying their organisation, shortening or limiting their duration. This is why the law gives publicity to matrimonial stipulations and the changes they may undergo, to the statutes and by-laws of associations. • The "moral bodies," constituted independently of the law, have no right to its guarantees; they cannot cause themselves to be represented by social powers; they remain individual groups, each acting in its own name; they are tolerated or ignored by the state so long as their dealings threaten no recognised rights. But the state still reserves to itself the power of restricting or suppressing even those it has acknowledged, except when they proceed from wants and interests anterior to civil society. It may happen to use or abuse the latitude it enjoys in this respect, and it too often sacrifices the higher interests of liberty and justice to one of an inferior or ephemeral character. French legislation can scarcely be said to give due recognition to the rights of association and union, by the American constitution so wisely withdrawn from the caprices of politics. Still, however defective its application may occasionally be, the principle is in conformity with the social interests. To the state belongs the right of recognising or ignoring special corporations, of making or refusing to make them "moral bodies" enjoying a legal status. This valuable right supplies the solution of a problem which the Revolution failed to solve. On the day when a wise majority shall wish resolutely to apply it, the separation of the Churches and the State will be effected without commotion or danger.

For, who could prevent the state from, in the first place, suppressing unauthorised communities, which are nevertheless daily admitted to the privileges of a personal legal status; secondly, from fixing a date after which authorised communities shall cease to be so; lastly, from declaring that as regards the state itself and any third party, Catholic, Jewish, or Protestant Churches shall exist no longer? By severing the ties, often oppressive

enough, which connect it with the religious corporations, the state would encroach on the rights of none of their members, each of whom, as a citizen, would still retain full liberty of conscience as well as the freedom to associate together. But the "moral bodies," companies of Jesus, orders of friar preachers, bishoprics or churches, would no longer be seen in the courts demanding reparation for imaginary outrages, indemnities for pretended interests, affecting none of the individuals in whose name they claim to speak. We should no longer have a still more vague entity, "religion," imposing on the civil judges the obligation of protecting *her* dignity, *her* moral code. The army would no longer be deprived of the active co-operation of healthy citizens, who might, without any great harm, exchange the cassock for the uniform for two or three years. The association of artists, students, lawyers, could but strengthen their faith or their reason. It would be no longer in their character as priests or bishops, but as competent citizens, if such they proved themselves to be, that so many *clericals* would take their place in the councils of the university and public instruction. It would no longer be as members of religious orders, but as efficient nurses and infirmarians, that so many inconvenient and meddling nuns (be it said without any reflection on their feminine virtues) would continue to crowd our asylums, foundlings, and other hospitals. The secular schools themselves are condemned to receive instruction in dogmas repudiated by the very societies of which their pupils form the future citizens. The time spent in conning over their catechisms and Bibles would be saved; the State would have forever ceased knowingly to contribute towards the perversion and degradation of the youthful mind, and in doing so it would be merely availing itself of a natural and consequently inalienable right.

What, then, is required to insure such a desirable and needful result? Two or three years of judicious legislation, at once comprehensive and consistently carried out; fifteen or twenty in France for the gradual extinction of the notorious and lamentable budget of public worship. We are aware that the Catholic jurists hold that the Revolution has entered into a perpetual financial

covenant with the Church, for "moral bodies" never die. But their otherwise strongly-questioned theory concerns us very little. Descendants cannot be bound by the errors of their forefathers. If, while respecting the rights acquired by French citizens, the State were to continue the incomes of its former ecclesiastical functionaries to their death or retirement, it would have done all that justice and regard for vested interests could demand at its hands.

Amongst the moral bodies we have included the family, which in France is legally based on the twofold foundation of paternal and conjugal authority. This foundation is solid, because laid by nature itself, and rendered immovable by fifty thousand years of accumulated habit. The helplessness of the child and the functions incumbent on the wife impose on the husband certain duties whose fulfilment engenders corresponding rights—duties of protection, rights of control. But the considerations dwelt upon higher up point out clearly enough the reforms that ought to be introduced into that section of the modern codes which regulates these rights and duties.

The modifications should apply to the spirit even more than the letter of the law. Legislators have doubtless already become alive to the conception of the right of the child; but they are still struggling to break away from the old respect for force. They regard the child sometimes as the property of its parents, at others recognising its initial and preponderating right, so that making its interest the very law of the family, they leave the appreciation of that interest to the more or less judicious will of the father and mother. No doubt they have allowed for the progressive emancipation of woman, and of her rights as a free member of the State; but they have been unable to break with Roman and Christian prejudices, hence they end in the strange contradiction that marriage, while emancipating the wife, even when a minor, keeps the spinster in a state of permanent minority. The statutes have been beset with two paramount anxieties—how to surround the legal union and filiation with every possible guarantee. This is a legitimate and necessary object; but are we for its sake to sacrifice the autonomy of woman and the right of the child?

Amidst all these difficulties, none of which can be disregarded, legislation has pursued a middle course, at the cost of no inconsiderable injustice arriving at certain partially satisfactory results. Thus, overlooking details, the financial arrangements regulated by contract, or foreseen by the law, guaranteed by the separation of effects, is in accordance with usage. The moral situation also, in a normal marriage, is satisfactory. In the case of the father dying intestate, the position of the mother is open to criticism, but the legitimate offspring have nothing to complain of. To the Revolution they are indebted for that equal right to the family inheritance, acquired and increased by them, for that equitable division which is so displeasing to the squirearchy and to certain jurists of the English school. The absolute right of bequeathing is opposed to the right of the child, hence by limiting it the code has acted in conformity with sound principle.

We come now to questions still open to controversy, and to some others about which there ought to be no controversy. The first have reference to the situation of the natural child and to the effects of adultery. As regards the mother, the rights of the child, whether natural or legitimate, are obviously equal except in what concerns the community; they would be also equal in respect of the father, were the paternity certain; but, by refusing to recognise this equality when the child is acknowledged, the law is inconsistent and unjust. However sacred in itself, marriage cannot avail against facts, less still against nature, which is indifferent to social enactments. The question of paternity is more doubtful and complicated; but without encouraging mere licentiousness, and with all due reserve, the law ought to admit it in the case of seduction and open concubinage.

Adultery, which is as inevitable as are the promptings of the genetic instinct, serves as the common debateable ground between the opponents and partisans of marriage. It is a fact which has many aspects. Seen from without it raises a smile, excites sentiments of pity, occasionally of envy—sentiments flowing from the old animal leaven which no civilisation can remove. The deceived husband is now ridiculous, because for long ages it was possible to regard

him in the light of a master tricked by his slave. The unfaithful husband piques himself on his good fortunes as so many proofs of his power. The unfaithful wife, disgraced in the eyes of her own sex, is sought after by the opposite sex ; while the betrayed wife, pitied by all, has but to choose her avengers.

But considered from the family point of view, adultery assumes a more sombre aspect. The act of the husband brings troubles, bickerings, despair into the common life ; that of the wife may give strange brothers to the children. Lastly, from the higher, or social point of view, adultery appears as the express violation of a contract, and by whichever side committed, the guilt is the same. But here the difference of sex, and the interest of the legal family outweigh, or rather are superadded to, the right of the contract. Hence the law finds itself involved in extremely delicate compromises, which are seldom in accordance with strict justice. In France it punishes the husband's act only when committed under the family roof, but proceeds against the wife's wherever committed. It even goes the length of excusing the murder of the guilty one and her accomplice, but seems to affect some surprise when the jury extend the same indulgence to the woman who kills the husband that has wronged her.

There is, however, one means, and one only, of putting an end to a situation resulting from adultery—divorce ; a remedy known to antiquity, adopted by most modern codes, though not by the French, suggested no less by nature than by logic itself. Against it cannot be urged the right of the child—a right that cannot infringe on the individual right of the parents as man and woman, and which is no more violated by divorce than by a second marriage. At the same time, divorce is a remedy that ought not to be lightly adopted, or before the trial of other measures. Still it remains the only sanction of the conjugal contract, and ought to be everywhere re-established.

We come now to the question of pains and penalties, the history of which begins, so to say, before that of the laws themselves. Its starting-point is personal vengeance, the *lex talionis*. By taking the place of the injured individual, society has undertaken to make

good, as far as in it lies, the wrong inflicted, or else to compensate by an equivalent injury inflicted on the author of the offence, an injury either corporal or pecuniary, which has taken the name of punishment or penalty.

But the outrage offered to one member of the community threatens and affects all the others. Hence, without ever losing its original character of transmuted retaliation, the punishment should satisfy at once the individual and social interests. Nay, more, the offender, being like his victim a member of the society, ought to find in the punishment itself a sort of moral redemption. The sentence imposed thus becomes at once a vengeance, a precaution, and an expiation. Here we have the elements of a just sentence. But the more the vindictive element decreases the more the penalty itself becomes elevated and justified, from the higher conception of the useful and just. Thus we see how retrograde is the still favourite expression *public vengeance*, dating as it does from an age when the right of punishing still derived directly from the mere animal passion of anger.

We have seen how slowly has been evolved the concept of justice. Far slower still has been the application of the abstract idea of right to the question of penalty. It has been far from keeping pace with intellectual progress. The frequent intrusion of barbarous or inferior peoples into more cultured societies has been a real but an accidental obstacle only; and the long disagreement between justice and retribution must be attributed to a more fundamental cause. Necessarily devolving on public powers, the management of the social interests became monopolised by men and castes, by whom it was abused. Above the individual and the community itself there was installed an entity of the reason—a simple or manifold personality, most frequently hostile to the very society it pretended to represent. It has changed its name, but it can scarcely be said to have yet abdicated its functions. In most places it still inspires the government, the administration, magistracy, and police; it has bequeathed to the State the right to espionage, of maltreating and massacring the citizens of whom and for whom it is formed. Dynasties and oligarchies have found

powerful auxiliaries in the religions, whose special characteristic is changelessness. These governments have received the worthless consecration of divine right, in exchange for which they have yielded to the religions the direction of the consciences, the determination of right and wrong—at least as far as was compatible with their own passions and interests. The laws, enacted by order, and to the advantage of these two joint authorities, besides the crimes prejudicial alike to the individual, to society, to the civil power, and public authority, were obliged to record a multiplicity of offences and pretended acts of high treason against God and king, clauses still encumbering the penal codes. Not that the interest of the individual, of society, of the criminal himself, is not appealed to on every page of these codes. But owing to the identification of dynastic, oligarchical, and religious interests with justice, the penalties have been vitiated in their principle, perverted in their application; they are still so to a greater extent than is generally supposed, at least in most continental states.

The Revolution has doubtless made itself felt in the penal as well as in the civil order; it has abolished torture, and by the controlling power of the jury has lessened the chances of judicial error. By rendering prisons tolerable, or at least decent, it has also prepared the way for the possible moral improvement of the criminal. The French Republic of 1848 abolished the pain of death for political offences, though it has been again recently revived, and the Augean stables are altogether far from being yet cleansed.

When penal justice shall have as its sole criterion the social interest involved in a clearly-defined individual interest, the number, duration, and severity of penalties will decrease, while more humanity will be shown in their application. Like the torture, the rack, "hanging, drawing, and quartering," the guillotine also, even now mentioned only with bated breath, will some day be consigned to our antiquarian collections, in company with those curious old pieces of ordnance still shown to the visitor. History tells us it must needs be so; but the abolition of the pain

of death will assuredly be due neither to "Christian sentiment, nor to any metaphysical disquisitions on the pretended inviolability of human life, nor yet to any idle pity for the life of murderers and highwaymen, but simply to disuse, its recognised inefficacy and uselessness, as well as to a social remorse for so many unwitting or wilful acts of injustice of which innocence has been the victim. In truth, repression has no other object except to protect society from confirmed criminals, while giving sufficient satisfaction to the just sentiment of vengeance felt by the injured. What can it matter whether this twofold object be achieved by the extinction or the removal of the offender? It is a mere question of fact, and some countries, less timid than France or England, have already effaced death from their penal codes; nor has it been stated that crime has consequently increased.

Many criminal statisticians have calculated that the scaffold begets as many murders as it suppresses. If it has no terrors for criminals by profession, still less does it prevent isolated crimes determined by passion. These last will never disappear from the face of the earth; for morbid and overwrought minds will always exist, and in their case the extreme penalty will be efficaciously replaced by a physical or moral treatment. As to habitual crimes, against which alone death might have a certain restricted and momentary advantage from the standpoint of social interest, society possesses two means of diminishing their number—education and a judicious use of penalties. The first is at once the most needed, the most reliable, and the easiest; the second, though so much more doubtful, is almost the only one that has yet been at least tried, although without any signal success. After ignorance and wretchedness have arrested the cerebral development and perverted the reasoning powers, moralising comes rather late. And how rehabilitate those creatures degraded by vice and hatred? How recommend to the employers of labour, those returned convicts, "ticket-of-leave men," repentant garroters, and the like? Wild beasts are not easily tamed; the savage returns irresistibly to his forests. Not that we are to renounce all hope of bettering the criminal classes. On the contrary, the attempt must be made. The prison must be

converted into an asylum, in which books freely distributed, teachers and work duly proportioned to the individual capacity, and sufficiently remunerated, may be applied to instruct, reform, and discipline those poor distorted and disordered brains. But we are still far from such an ideal. The prison might be succeeded by penitentiary colonies, and, when the time came to intrust them with their liberty, the "convalescents" might be released in some remote and desert region, of which there is no lack. Here, without humiliation to themselves or danger for the mother-country, these outcasts might found new societies, form the nucleus of flourishing states.

But what expense and trouble might be spared were society not obliged to have recourse to these expedients of penalties and expiation! It is not only her interest but her strict duty to prevent crime. Let her reflect for a moment on the causes of vice. Who is answerable for them? Who has created them? Was it not society herself, the very society that was established for the purpose of destroying them? These outcasts have been produced by her defective organisation. When secular and compulsory education shall have refined these brutal minds, when a much-needed foresight shall have multiplied the resources of the labour-market, when a purer atmosphere shall circulate in the lower social grades, society will have done all in her power to suppress the germs of the disorders by which she is being consumed. Then she will be able, with less scruple and in a more enlightened spirit, to apply to evils already diminished by hygiene the rational processes of less brutal and more efficacious surgical and therapeutic methods.

Such are the views by which Voltaire and Beccaria were inspired, and with which all philosophic students of crime are familiar. While showing their scope, the means by which they may be realised, and the great distance still separating us from such a result, we are far from overlooking either the advances already made in penal jurisprudence, or the efforts of those who have endeavoured to harmonise the laws and their effects with such advances.

§ 3.—*Ethics and Education.*

A few pages more and we shall have concluded this long journey through the philosophic realms and the realities of the inorganic, living, and human kingdoms which constitute the sole materials of philosophy.

We have set forth the gradual evolution of living forms. We have seen how the development of the intellectual faculties corresponds with the progressive complexity and concentration of the sentient and cerebral organisms; how the wants created by the outward world, by the sexual and social relations engendered instincts, desires, passions, emotions, accompanied by pain and pleasure, which by means of more or less complex, rapid, and conscious cerebral operations are interpreted by volition and satisfied by action; how from all these necessary or necessitated contacts and motions, at once causes and effects of each other, abstraction is evolved, an alternative character common to all—good and evil; a second, and equally alternative character peculiar to certain categories of sensation—the beautiful and the ugly; lastly, a third, restricted to the judgment, affirmative and negative—the true and the false. We have detected the seductive illusion, which, by assimilating rather than combining these three concepts—intellectual springs of action in the moral order, in art and science—has confounded the true with the good and beautiful, the false with the bad and ugly. We have seen how human societies have advanced irregularly and by diverse paths towards the realisation of this triple object—the good, the beautiful, the true; how rights and duties were determined by reciprocal interests; how the harmony of both became expressed by the general term *right*; how the conformity of all actions to right, independently of person or circumstance, came to be regarded, under the name of justice, as the supreme interest of societies and as the obligatory rule of the social relations. We have considered the endless variations and discrepancies between right and justice in the practical and theoretical orders; the aids and obstacles brought to bear on the application of these concepts by religions, manners, wars, invasions, historical and political vicis-

situdes, theocracies, monarchies, and oligarchies; the revolutions inevitably created by the survival of institutions beyond the life of the moral conditions that had produced them; the incessant struggle between habit and disuse; lastly, the unavoidably sluggish march of the written codes when compared with present manners and necessities, still more with the moral laws derived by induction from accumulated experience.

Here we have all the elements of morality, all the materials of the ethical science. Morality, in effect, is the outcome of biology, physiology, and history; like all science, it is from observation that it induces the laws it formulates. It studies all the relations that have arisen or may arise between man and man, subjecting these relations to the control of the concept of justice, which sums up in itself all the wants and interests—physical, emotional, and rational, individual and mutual—of the community.

Those who have followed with us the genesis of the idea of justice, of the moral criterion, must be convinced that there are no moral principles anterior to all social states, unless mere pleasure and pain, with the corresponding notion of good and evil, be regarded as such. And then we will say that there exist no moral principles anterior to the contact of a living and sentient organism with an outward medium of some kind. We will further say that between man and the material universe there can arise no relations of a moral order, because the moral idea involves reciprocity of sentiments and actions. But if man is affected by contact with things, these are not in their turn similarly affected by human actions. There is no concept of justice common to man and a stone, to man and lightning, or a burning mountain. No exchange of acts and sentiments, suggestive of summary moral rules, arises till we reach the animal state. However far back may be placed the origin of the moral order, it will never go beyond that of the zoological series. Hence the qualities of eternal, universal, coupled with the terms "justice" or "morality," have no objective reality. They are purely honorary epithets.

Isolated from the phenomena whence they arise, general can-

cepts readily assume an absolute character. The mind, considering them in themselves, forgets that they express mere relations. This is the illusion that has beguiled the metaphysicians and the inventors of the *categorical imperative*. Another source of error has been the persistence of the religious virus. Like all the "perfections," the moral absolute has gone the way of its fellows, inflating the phantom of the theodicies with one more nonentity and contradiction. Hence the discussions on the idle question of a Providence, a divine goodness, on the compatibility of evil with the author of all good; hence the necessity of attributing to God the human passions, wrath and vengeance, the blind rage which in its reprisals chastises the innocent for the guilty, lashes the billows or executes hostages; hence also the idea of pitting against this all-powerful being a rival ever vanquished, ever returning to the combat, Lucifer, Typhon, Ahriman, a second God! Pure anthropomorphism! Myths in which poetry has revelled, in which reason perishes.

The only specious argument in favour of an innate moral sense might be the unanimous accord of all men on the character of their actions. But even if such unanimity existed, it would not be difficult to refute the argument based upon it. As it is, it never has prevailed, and nothing has varied more than the standard of good and evil, of the beautiful and ugly, of the true and false, even in respect of the simplest and most primitive relations, the crudest facts, such as murder and violence, theft and fraud. Omitting the state of war, in which the most criminal outrages on the person and property are committed with impunity and even without remorse, where shall we look for this pretended identity of the moral sense? Shall we ask it of the wily Ulysses, who steals his neighbour's horses? or of the Spartan who, Fagin-like, teaches his children the art of theft? or of Samuel, who "hewed Agag to pieces before the Lord in Gilgal?" or of the Fijian, who strikes off his father's head? of the Australian, who eats his female associate and little ones, or of the African king Mtesa, who shoots down a passing subject to try his rifle, and throws his women into the lake because they are troublesome? or of the Teuton, who kills

a freeman for fifteenpence, another's serf for half the amount; his own for "the fun of the thing!"

But, it is argued, nowadays, in the same civilised surroundings in some fifteen European states, all men, or, let us say, ten per cent. act in accordance with the same rules. Those who, grasping one only of its factors, base morality on the emotional sentiments, on love, sympathy, benevolence; those who, approaching nearer to the truth, attach more importance to the useful; those who conceive of justice either as a relative and progressive ideal, or as the revelation of an eternal and absolute principle; all, under like circumstances, think and act alike. This is soon said, but it will be seen that, when more closely examined, their harmony, rare in the political sphere, frequent enough in the family circle, is constant in the order of the civil, private, and individual relations alone. And why so? Because the relations of man to man, the simplest and most inevitable, necessitated by social contact, by the most urgent and imperious interest, fixed by habit, analysed and regulated by the laws, also leave the least scope for uncertainty, because custom imposes them on the most diverse temperaments and contrary teachings. Whether you believe it or not, however much you may speculate on love, on the useful or the just, it matters little, for however opposed may be your starting-points, you will necessarily arrive at the same conclusions. You shall not kill nor steal; you shall abstain from fraud and violence; you shall help the drowning man; you shall sacrifice your interest for the more pressing interest of your neighbour; in virtue of your education, of your acquired instincts, of the outward medium that has been slowly constituted in the course of some thirty centuries, you are aware that either as regards yourself, opinion, or the law, you cannot with impunity violate the rule established by usage. In the family also, nature and institutions have ended by creating a certain stability, though already less immutable than the foregoing. But public right, which far more completely than the other two depends on reason, is a prey to all the uncertainties of dialectics. Being the co-ordination of the knowledge and ideas arising from experience, reason is in fact subject to as many

varieties as there may be degrees and directions in mental culture, increased, chequered, swayed by inheritance, by the surroundings, and by organic or cerebral peculiarities. The logical instrument is equally applicable to the most contrary principles, deriving from them conclusions equally correct, but which by no means establish the truth of the premisses. The correctness of the deduction produces an illusion respecting that of the induced concept, thus begetting tenacious and irreconcilable convictions.

Shall we ever arrive at ethical unity? Never in the practical order; in theory it will be approached, provided the fresh elements be foreseen which every age will introduce in its turn, and on condition of allowing for the unknown. But the very first condition of this coherent, if not complete theory, is the preliminary removal of all sources of error and discrepancy.

The intelligent group, who some years ago founded the *Independent Moral System*, were imbued with this necessity. They maintained, with some skill, that the moral law had no necessary relations with any metaphysical or religious tenets, with any political or social views. According to them, all men belonging to the same epoch and to the same civilisation might agree together in the ethical order as on a common "platform." This was no doubt a useful thesis; but one which starts from what Kant would call a *postulate*.

But the moral order has not been, is not, and, in the absolute sense, never will be, independent. This is obvious enough when we bear in mind that, before regulating manners, ethics must have been evolved from them.

Manners derive not only from such physical wants as hunger, thirst, sexual affinity, the crude instinct of preservation and reproduction. They proceed also from acquired ideas, and are influenced by such ideas according as the will is stimulated by impulses which determine actions. Hence manners, and consequently morals, have been modified by all our notions of things and beings, by every result of the cerebral elaboration. They reflect every error, even those most diametrically opposed to the fundamental wants.

There are certainly some relations so primordial and necessary

that all religions and theories have accepted them. If beliefs have modified manners, manners have in their turn reacted on beliefs. Christianity—and the same might with equal truth be said of Buddhism or Shamanism, of Jainism or Islam—has vainly endeavoured to destroy private property, the family, social and political organisation, and especially science. But while inflicting some injury on humanity, it has so utterly failed in this daring attempt, that it has long repudiated this tendency of its teaching. Once called to the government of men, it has been fain to proclaim itself the practical defender of all that its theories assailed. Reserving heaven for itself, it has, much against its will, left the earth to man, on condition of controlling all his relations, and making him pay dearly for an ultimate right to an illusory treasure, which it meantime withholds and turns to profitable account. Thus, while accepting the necessities of social life, and the laws—constant in their principle, changeable in their dispositions, which existed before itself, and which experience had saved from every disaster—Christianity has distorted, atrophied, or perverted them.

These successive and tenacious influences of religious ideas and the surroundings cannot be readily got rid of. Accumulated, amalgamated, consolidated by atavism and permanent interests, they have survived the causes by which they had been determined. In the form of prejudice they still beset the most enlightened minds, and behind them still lingers their last shadow, false shame.

Just as modern codes, summaries of applied ethics, are often the residue of Roman, barbarous, feudal, or municipal laws, written or traditional, current morality is often a compromise between the moral systems fashioned by religions and metaphysics to their own likeness. We live under the empire of Christian ethics. The Gospel and the Imitation of Christ still prevail, if not in society radically reformed by the Revolution, at least in the principal events of life—births, marriages, and death—and the penal code; and still worse, in instruction and education.

To show that the mass of errors and unjust precepts in the ultramontane moral system—perpetual intervention of Providence through miracles and “visitations;” worship of a jealous and

avenging master ; blind obedience to the vicars, whether spiritual or temporal, of that unknown ruler ; identification of virtue with the pursuit of an imaginary salvation ; expiation of an original sin antecedent to all action, and for which an incarnate God has vainly died ; belief in good and evil spirits, in an eternal heaven and hell, efficacy of propitiatory formulas and superstitious practices, absolute intolerance, combined with a vague brotherhood, superior excellence of celibacy, mortification of the flesh, idolatrous worship of a virgin mother, uselessness and danger of science, source of all evils, cause of the first man's fall—to show that all this, and much more, is at variance with civilised manners and morals, with the wants, the interests, and ideas controlling modern life, would be a task as easy as it is superfluous. The Roman Church herself has taken the trouble to prove, by the famous *Syllabus* of modern errors, the incompatibility of her teaching with the existence of civil society, secular and free.

Nevertheless, these very tenets still constitute the foundation of primary education in France and other Catholic countries, and they will continue to do so until the State sets the example of a radical change. Let it banish theology and bigotry from the national schools. Let it replace unintelligible catechisms by treatises on practical morality, by summary notions of modern civil and individual right, by essays on want, interest, right, reciprocity, the affections, friendship, devotion, justice, by varied dialogues, either written or suggested by experience to the teacher. In his answers the child will betray his tendencies, his capacity, temperament, everything requiring either repression or encouragement. And if, instead of theological or metaphysical motives, he is made gradually to understand that the satisfaction of his wants has a necessary relation to those of others, that the respect for the rights of his neighbour is the only guarantee of his own, that the appeal to force is precarious ; lastly, that a wilful infraction of the written or unwritten law is always a source of regret, a regret which, under the name of *remorse*, embitters and degrades existence, he will realise for himself the conception of society and of justice. After all, is not the moral sense formed in this way ? To it religion

adds nothing. Let the State therefore begin, and the parents will follow, without losing anything of their legitimate authority. Filial affection will rather be intensified by an unalloyed and boundless sense of gratitude.

Instruction will complete the work of education. It has in fact already commenced, by lessons on things, by descriptions from nature, of rocks, plants, useful and noxious animals, of human types and characters, by some notions of cosmogony and history, of mathematics applied to the minor pecuniary interests, to boyish games, to mensuration, it has prepared the young mind for the various relations, which will sharpen his judgment and determine his volitions and acts. After having furnished the mind with certain and unquestioned facts it will place in his hands the instruments invented by men, in order to fix them in his memory, to analyse, classify, and employ them—languages, sciences, industries and arts—while at the same time unfolding the history of the peoples who have spoken those languages, and created those sciences. Then reason, gathering strength, will be competent to embrace the vast cycle of universal history—history of languages and literatures, of the descriptive and exact sciences, of the arts, industries, and commerce; lastly, of ideas, religions, and philosophies. Such is the scheme of secondary education. It is vast, and continues to expand from day to day; but a judicious and consistent arrangement of these various yet inseparable subjects will vanquish time without affecting the bodily health, while that of the mind will be firmly established. The adult student will henceforth need only to maintain and strengthen it by exercise and a deeper study of the ground already traversed. He will retrace his steps, and according to his tastes plunge still deeper into the past. He will approach the more special subjects of the higher education with profit to himself. Lastly, pursuing some definite line, without losing sight of the others, he will originate. In his turn, he will think for himself, and act with full knowledge of the situation within the circle assigned to him by his moral training. He will thoroughly understand the extent of his rights and duties, as a son, father, friend, citizen, and man. Then at

last, his convictions, will be firmly rooted, and his actions will ~~seem~~, will be, all the freer that they will be more conformable and faithful to those convictions. He will know where he is, what he does, how it is done, whence he comes, whither he goes. And is not this the sum of all philosophy?

But what then is to become of metaphysics? Well, metaphysics must look to it.

The pantheons and antiquarian museums are already open; each successive age here deposits the idols of its imagination and reason, its honorary deities and defunct entities; now the dark-browed demiurges, now the motionless motors, incorporeal forces, virtualities, geometrical points; or else the old goddesses, ever young, ever insatiable of blood and pleasure, delusive funereal rites, the houris of the Prophet, with their phosphorescent glance lighting up the half-opened entrance to the grave; farther on the Eumenides and the Destinies, in company with the disconsolate Postulates. The learned inspect the long galleries of these cities of the dead, gently brush the dust from the veil of an Isis, or from the harmless thunderbolt of a Zeus, classifying, labelling, numbering the dyades, the triads, the Persian, Egyptian, Indian, Greek groups of twelve; they wrap in transparent bombazine the "occult causes," the categories, the essences, everything that dreads the air and threatens to evaporate. We have already visited some of these galleries, and the fate of Ammon, of Jupiter, of Jehovah has revealed to us the destiny of their successors. The trinities still flourishing here and there, the fluttering hypostases and metaphysical clouds dispersed throughout the intellectual atmosphere, will all in their turn be swept into our museums of natural history. The time is approaching when, freed from the shackles of idle terrors and fictions, man will devote all his thoughts to his real relations with the universe and his fellow-men. *Novus rerum nascitur ordo.*

Our last word shall therefore be one of hope and assurance, rather than of an illusory optimism. Optimism and pessimism are in fact meaningless terms in the mouth of the philosopher. We know—be it said with all deference to Sanchez and to Socrates, as well as to those who go about repeating that *nothing is known*—we

know that progress is the necessary sequence of the organic and mental evolution, the condition of human development; that it is brought about slowly, partially, with many interruptions and painful reactions; that it is accomplished under the control of strictly concatenated necessities, within a circle whose horizon often eludes our ken, but which is beforehand limited by the death of the individual and the end of the race, of the species, of the animal world, of the earth and sun; we know that all that had a beginning must have an end, that the universe itself is indifferent to our subjective views and laws of progress. But we also know that before returning to the inorganic state, all living things are nourished, have motive and reproductive powers, assimilate outward substances; that the free exercise of the faculties, intensified by hereditary labour, is the aim of individual and social life.

Contempt, despair, renunciation, scepticism, mysticism, *apathy*, are all so many diseases of the reason, when they are not so many forms of vanity.

Of the living organism the essential property is action; of action the result, the mainspring and the instrument is science.

To act in order to know, to know in order to act, such is the highest formula—the law of human life.

THE END.

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